

MEMOIRS
OF THE
AMERICAN ENTOMOLOGICAL SOCIETY
NUMBER 39

A Synopsis of the Sawflies (Hymenoptera: Symphyta)
of America South of the United States: Argidae

DAVID R. SMITH

Systematic Entomology Laboratory, PSI,
Agricultural Research Service, U. S. Department of Agriculture,
c/o National Museum of Natural History, NHB 168,
Washington, D.C. 20560

Abstract.— The family Argidae is divided into six subfamilies, Zenarginae, Arginae, Atomacerinae, Erigleninae, Dielocerinae, and Sterictiphorinae. These divisions are based primarily on wing venation, mandibles, and preapical tibial spines. All except for the Australian Zenarginae occur in the Neotropical Region. The Argidae are widespread in the neotropics, occurring from Mexico to northern Argentina and Chile. The fauna consists of 5 subfamilies, 32 genera, and 356 species. Keys are provided for identification of all taxa. All references for each taxon and known host plant data are given. One new genus, *Zynzus*, and the following 94 new species are described: *Scobina angusticeps*, *S. brusa*, *S. diagonica*, *S. emora*, *S. guaca*, *S. paradorsalis*, *S. tina*, *S. zantara*; *Atomacera comana*, *A. diasi*, *A. flava*, *A. heda*, *A. lobula*, *A. mina*, *A. nama*, *A. petroa*, *A. raza*, *A. serrata*, *A. tria*, *A. zonia*; *Dielocerus ocreatus*; *Themos malaisei*, *T. ochreus*; *Eriglenum tristum*; *Neurogymnia albitarsis*, *N. longiserra*, *N. nigricosta*, *N. tria*; *Sericoceros sutus*, *S. tannuus*, *S. vumirus*, *S. zonorus*; *Acrogymnia acella*, *A. palama*; *Acrogymnidea surinamensis*, *A. udata*; *Adugoa willinki*; *Brachyphatnus vescus*; *Didymia connarusae*, *D. breva*, *D. resa*, *D. teusa*; *Hemidianeira dasua*, *H. dominicaensis*, *H. evansi*, *H. menkei*, *H. midea*, *H. nantina*, *H. plana*, *H. quidra*; *Manaos toulus*; *Neoptilia nyvsa*, *N. opulesa*, *N. palla*, *N. stata*; *Ptilia townesi*, *P. una*; *Schizocerella kierychi*; *Sphacophilus barius*, *S. ceraus*, *S. defius*, *S. darus*, *S. edus*, *S. evansi*, *S. holmus*, *S. iotus*, *S. janzeni*, *S. jucunus*, *S. latus*, *S. madunus*, *S. masoni*, *S. nuntius*, *S. odontus*, *S. panitus*, *S. scutinus*, *S. tenuus*, *S. usinus*; *Tanymeles bequaerti*, *T. critus*, *T. fasciatus*, *T. medeus*, *T. rasitus*, *T. rossi*, *T. suritus*, *T. tosus*, *T. wizunus*; *Trailia silana*; *Zynzus apicofuscus*, *Z. dusurus*, *Z. himus*, *Z. menkei*, *Z. retus*, *Z. townesi*, *Z. usirus*. *Scobina ventris* is proposed as a new name for *S. ventralis* (Klug). In addition, 114 new combinations and 76 new synonymies are proposed.

INTRODUCTION

Argidae occur in all tropical, temperate, and subarctic regions of the world. Even though worldwide in distribution, the fauna of the Neotropical Region is the most diverse. Representatives of all subfamilies, except the Australian Zenarginae, occur in the neotropics. In numbers of genera (32) and numbers of species (over 350), the neotropical fauna includes more than twice the number of genera and nearly half the species as the rest of the world regions combined.

Most species, where the biology is known, feed

externally on the foliage of the host plants. A few are leaf miners. Similar to some Pergidae, subsocial habits in sawflies reach their highest development in some neotropical Argidae, primarily the Dielocerinae. In these, the female sits over and protects her eggs and young larvae, the larvae feed gregariously, some exhibiting distinctive organized feeding patterns, and the larvae form a mass cocoon protected by a common covering.

This is the third in a series of papers on neotropical

Symphyta. The first (Smith, 1988) reviewed the Xyelidae, Pamphiliidae, Cimbicidae, Diprionidae, Siricidae, Xiphydriidae, Orussidae, and Cephidae. The second (Smith, 1990) treated the Pergidae. The single family remaining, the Tenthredinidae, will complete the Symphyta. Nearctic Argidae, for North America north of Mexico, were revised by Smith (1969b, 1970, 1971b, 1972, 1989).

The format, museum designations, and acknowledgments are given in Smith (1988). Additions are given in acknowledgments at the end of this paper.

Family ARGIDAE

Antenna 3-segmented, the flagellum (3rd segment) single segmented, simple (Fig. 272), furcate in some males (Fig. 273). Head type open. Ventral arms of cervical sclerites (propleuron) narrowly or broadly rounded on meson, approximate or sometimes separated (Figs. 9, 164, 263). Mesosternal suture present (obscure in a few genera); mesoprescutal sutures distinct. Posterior margin of mesoscutellum without posttergite. Cenchri usually large and much closer together than the breadth of one (except Zenarginae). Both apical spines of foretibia, if present, simple (in Zenarginae, outer foretibial spine with short lateral tooth); preapical spines of mid- and hindtibiae present (Fig. 5) or absent. Forewing (Fig. 2) without radial crossvein (2r); basal section of vein 2A+3A atrophied, leaving anal cell petiolate (except Zenarginae, Fig. 1). Hindwing (Fig. 2) with 2 closed cells, Rs and M (except Zenarginae). Metepimeron undivided and fused with lateral margin of first abdominal tergite.

Members of Argidae are immediately recognized by the single segmented flagellum of the antenna.

Few higher classifications have been attempted. Konow (1905a, 1907a) treated the Argidae as a subfamily of the Tenthredinidae, and divided it into two tribes, the Argides and Schizocerides, based on the presence or absence of the intercostal crossvein (Sc) in the forewing, respectively. Rohwer (1918) keyed three subfamilies, the Zenarginae, Arginae, and Sterictiphorinae, the latter two also separated by the presence or absence of an intercostal crossvein. Malaise (1941) keyed the world genera but did not recognize major groupings. Benson (1938) gave the first subfamily classification and presented a key to ten world subfamilies, seven of which occur in the neotropics. In 1963, Benson recognized only three world subfamilies, Zenarginae, Arginae, and Sterictiphorinae, with three tribes in the Arginae and four tribes in the Sterictiphorinae. After study of many thousands of specimens, I believe the family can be

separated into six subfamilies, Zenarginae, Arginae, Atomacerinae, Dielocerinae, Erigleninae, and Sterictiphorinae, all of which except Zenarginae are represented in the neotropics. As yet, I see no reason for tribal classifications within the subfamilies.

Relationships

The Arginae is represented in the neotropics by the two genera *Arge* and *Scobina*, the latter unique to this region. *Arge* is primarily a northern genus (though large in the Ethiopian Region) but with a number of species in Mexico and one as far south as Colombia. *Scobina* possibly has its counterpart in Australia in the genus *Antargidium* which includes only a few species. Both share the transorbital carinae which Benson (1963) emphasized as relating these genera, and he put both in his tribe Scobinini. However, *Antargidium* lacks a genal carina and has a pronotal groove (both absent in *Scobina*), and it may actually be closer to *Arge* with which it shares these characters.

The Atomacerinae are found only in the Western Hemisphere from Canada to Argentina, but only two species occur in eastern North America whereas more than 30 are known from southwestern United States to South America. The Dielocerinae and Erigleninae are unique to South America and related counterparts are unknown from anywhere else.

The Sterictiphorinae, although very diverse in the neotropics, are found in all other parts of the world, including the small genera *Trichorachus* and *Styphelarge* from Australia. The largest holarctic genera are *Sterictiphora* and *Aprosthem*. The two Australian genera are included in the tribe Trichorachini by Benson (1963).

Hosts and biology

Curtis (1844) was the first to present biological notes on neotropical Argidae, describing some of the social habits of *Dielocerus*. Other miscellaneous notes since that time are by Lima (1927) on *Dielocerus*, Monte (1941, 1946) on *Dielocerus* and *Digelasinus*, and Martorell (1941) on *Sericoceros* in Puerto Rico. Dias (1975, 1976) gave the most complete biological and behavioral studies of two species, *Dielocerus diasi* Smith and *Themos olfersii* (Klug). Kimsey and Smith (1985) gave some notes on several species reared by the senior author in Panama. The biology of *Schizocerella pilicornis*, a widespread species in the New World and a leafminer or external leaf feeder of *Portulaca*, has been covered in many papers (see references under the species). Much of the host data presented in this paper has not been recorded before. A summary of the recorded host genera is as follows, with the associated

sawfly genus in parentheses:

Anacardiaceae	— <i>Rhus</i> (<i>Arge</i> spp.).
Bombacaceae	— <i>Ceiba</i> (<i>Themos</i> sp.); <i>Eriotheca</i> (<i>Themos</i> sp.).
Connaraceae	— <i>Cnestidium</i> (<i>Ptilia</i> sp.); <i>Rourea</i> (<i>Ptilia</i> sp., <i>Didymia</i> sp., <i>Trochophora</i> sp.); <i>Connarus</i> (<i>Didymia</i> sp.).
Convolvulaceae	— <i>Ipomoea</i> (<i>Atomacera</i> sp., <i>Sphacophilus</i> sp.).
Erythroxylaceae	— <i>Erythroxylon</i> (<i>Digelasinus</i> sp.).
Lecythidaceae	— <i>Lecythis</i> (<i>Ptilia</i> sp.?).
Leguminosae	— <i>Acacia</i> (<i>Zynzus</i> sp.); <i>Cassia</i> (<i>Adurgoa</i> sp.); <i>Desmanthus</i> (<i>Zynzus</i> sp.); <i>Hosackia</i> and <i>Lotus</i> (<i>Aprosthemus</i> sp.); <i>Hymenaea</i> (<i>Sphacophilus</i> sp.); <i>Inga</i> (<i>Dielocerus</i> sp., <i>Hemidianeura</i> sp., <i>Manaos</i> sp.); <i>Lonchocarpus</i> (<i>Sericoceros</i> sp.); <i>Machaerium</i> (<i>Eriglenum</i> sp., <i>Subsymmia</i> sp.?). <i>Mimosa</i> (<i>Zynzus</i> sp.); <i>Prosopis</i> (<i>Zynzus</i> sp.); <i>Sclerobium</i> (<i>Dielocerus</i> spp.); <i>Stylosanthes</i> (<i>Sphacophilus</i> sp.).
Malpighiaceae	— <i>Banisteriopsis</i> sp. (<i>Schizocerella</i> sp.).
Malvaceae	— <i>Althaea</i> , <i>Malva</i> , <i>Malvastrum</i> , <i>Sphaeralcea</i> , <i>Sida</i> (<i>Neoptilia</i> spp., <i>Scobina</i> spp.); <i>Thespesia</i> (<i>Themos</i> sp.); "Malvaceae" (<i>Brachyphatnus</i> sp.).
Polygonaceae	— <i>Coccoloba</i> (<i>Sericoceros</i> spp.); <i>Eriogonum</i> (<i>Sphacophilus</i> sp.).
Portulacaceae	— <i>Portulaca</i> , <i>Montia</i> (<i>Schizocerella</i> sp.).
Rosaceae	— <i>Chrysobalanus</i> (<i>Sericoceros</i> sp.).
Sapotaceae	— <i>Mahea</i> (<i>Pachylota</i> sp.).
Tiliaceae	— <i>Luehea</i> (<i>Themos</i> sp.).

Of special interest is the development of subsocial habits, similar to some Pergidae, where the female sits over and protects her eggs and young larvae, the larvae feed gregariously and usually in an organized pattern, and the larvae spin cocoons together protected by a communal covering. This has been recorded in some of the literature, but the most complete studies are by Dias (1975, 1976). This social pattern is most developed in genera of the Dielocerinae. It is alluded to in *Sericoceros* (Erigleninae) by Martorell (1941) who indicates that the female of *S. krugii* stays with the eggs, the larvae feed gregariously, but they do not make a common covering over the cocoon masses. All other groups of Argidae apparently do not show such social development, but information is very scanty.

Structures

Various features used in the grouping of subfamilies and separation of genera are discussed below.

Possible generalized versus specialized conditions are indicated if known.

Head. A genal carina occurs only in *Scobina* (Arginae) and *Zenarge* (Zenarginae). Carinae on the head are most developed in *Scobina* (Fig. 10) which have carinae on the clypeal suture, interantennal and supraclypeal areas, lower inner orbits, and laterally from the hindocelli to each eye. In most other genera, only an interantennal carina is present which may be short, sharp (Fig. 339) or rounded or Y-shaped above the antennae and bisect the supraclypeal area below (Fig. 268). The latter is most developed in *Acrogymnia* and *Acrogymnidea*.

Antenna. The flagellum is simple in both sexes in the Arginae, Zenarginae, and Atomacerinae (Figs. 90, 91). In males of the Dielocerinae, Erigleninae, and Sterictiphorinae the flagellum is furcate (Fig. 273). The furcate antennal flagellum is a specialized feature. The antennal flagellum of males usually differs from that of females by the presence of numerous long, erect hairs and the presence of transverse ridges thus making it appear segmented.

Mouthparts. The clypeus is usually truncate to subtruncate, but in *Dielocerus* and *Digelasinus* there is a deep, central, semicircular emargination (Figs. 200, 217). Several other genera have a slight but distinct emargination at the center. The labrum is usually broader than long, rounded or sometimes depressed at its center.

The mandibles may be simple, either the right or left mandible may have a tooth or basal lobe at its base, or the left mandible may have two or three small teeth or crenulations near its center (Figs. 8, 240, 270, 391, 499). In the Zenarginae, each mandible has a large subapical tooth, and in the Atomacerinae and Erigleninae, each mandible has two or three large teeth that are nearly subequal in size (Figs. 134, 161). These are probably more generalized states.

The maxillary palpus is normally 6-segmented and the labial palpus 4-segmented (Fig. 7). The labium is trilobed, though the lobes are sometimes fused and difficult to see. Only the Dielocerinae have a reduction in number of segments, and the extreme is in *Themos* where the maxillary and labial palpi are each 3-segmented and the labium is simple, without lobes (Fig. 241). This reduction is considered specialized. In some genera of Erigleninae and Sterictiphorinae, the third segment of the labial palpus and fourth segment of the maxillary palpus are extremely enlarged, usually much broader and shorter than the other segments (e.g., *Eriglenum*, *Ptilia*, *Didymia*, Figs. 135, 343, 500). In other genera, only the third segment of the labial palpus is enlarged (e.g., *Acrogymnia*, Fig. 271), and in others

there is no enlargement (e.g., *Sericoceros*, *Sphacophilus*, Arginae, Figs. 7, 163, 540), all the segments being of uniform width. Such modified segments are considered specialized.

Thorax. Mesosternal-pleural sutures are present in most Argidae but are sometimes faint and difficult to see, especially in the Atomacerinae. A pronotal furrow is present in *Arge*, extending from near the tegula to the anterolateral margin of the pronotum. This is absent in all other Argidae treated here. In most Argidae, the cenchri are large, transverse, and very close together. Only in *Zenarge* are they small and farther apart than the breadth of one. They are somewhat farther apart in some Dielocerinae, but not significantly so. Small cenchri are considered the most specialized by reduction.

The ventral arms of the cervical sclerites (propleuron) are usually narrowly rounded on the meson and meet or are close together (Fig. 9). In *Zenarge* and some Dielocerinae they are broader and more approximate (Fig. 263), and in *Sericoceros* and a few other genera they are separated, joining the prosternum laterally to form a precoxal bridge (Fig. 164). These latter two types are directions of specialization.

Abdomen. The propodeum (first tergum or basal plates) is mostly sclerotized in most Argidae. In some Atomacerinae and Sterictiphorinae, the propodeal plates are reduced in size, thus leaving a large membranous area.

In males of two species of *Hemidianeura*, there are unusual cavities laterally on the eighth tergite (Fig. 396). These are deep, circular, and lined with erect hairs, and there is usually some whitish substance in each. They are reminiscent of the large cavity at the center of eighth tergite of the male of *Neostromboceros congener* (Konow) (Tenthredinidae), for which Malaise (1944) proposed the term "sinus sexualis," but the cavities in these argids are different in that one is found on each side of the eighth tergite.

The female sheaths are of various shapes. They may be slender and simple (Figs. 626-629), broad (Figs. 70, 71), pincer-like (Figs. 11-13), or with various laterally or posteriorly projecting scopae (Figs. 543-555). The female lancets and male genitalia are equally diverse. The male genitalia usually have broadly rounded gonostipes, meeting ventrally on the meson, and the harpe is separate from and articulates with the gonostipes (as in Figs. 39-65). However, those of *Neoptilia* are most unusual in the Argidae in that the harpe is fused with the gonostipes (Figs. 489-493) and a definite parapenis is developed ventrally (Figs. 492, 493). The sheaths, lancets, and male genitalia are commonly used in

species separation, but those of many genera conform to a similar pattern.

Legs. The Zenarginae and Arginae (except some Asian genera) have preapical spines on the mid- and hindtibiae. The Zenarginae have two preapical spines on the midtibia and one on the hindtibia, and the Arginae have one on each (Fig. 5). These are lost in all other argids. All argids have two apical spines on each tibia except for the unusual *Pachylota* which has lost all tibial spines (Fig. 231). The apex of the hindtibia is modified in *Brachyphatnus* and *Neoptilia*. There is a collar-like projection, and the apical spines arise at the base of the collar and barely exceed its apex (Fig. 328). In all other genera the apical hindtibial spurs arise at the apex of the tibia.

The tarsal claws are simple in most Argidae. In the Atomacerinae and *Acrogymnidea* (Sterictiphorinae) they are simple but with a large acute basal lobe (Figs. 95, 294). In *Neoptilia*, the claws are bifid having a large inner tooth (Fig. 469). In *Themos*, all the claws are bifid or only the foreclaw is bifid and the mid- and hindclaws are simple with a basal lobe (Figs. 242, 243).

In most genera, the hindcoxae are contiguous, but in *Sericoceros* especially, the hindcoxae are far apart, being separated by a distance equal to the breadth of one.

Forewing. The radial cell may be open (Figs. 532, 533) or closed (Fig. 2) at its apex, but always closed in the Arginae. A small basal anal cell may be present (Fig. 2) or absent (Fig. 318). The costa varies from much narrower than the intercostal area (Figs. 3, 4), to swollen and as broad or broader than the intercostal area (Figs. 532, 533). It is modified, i.e. swollen, only in many genera of the Sterictiphorinae. The intercostal crossvein (Sc) is present in the Zenarginae, Arginae, Atomacerinae, and most Dielocerinae and Erigleninae (Figs. 3, 4, 89, 131, 198), but it is lost in all the Sterictiphorinae (Figs. 495, 532, 533). Veins M and Rs+M meet Sc+R at or near the same point in most Arginae and some Dielocerinae (Figs. 2, 198), but in other groups, including Zenarginae, M has migrated basally so it meets Sc+R far basad to the point where Rs+M meets Sc+R (Figs. 442, 495). This migration is a specialized state. In the Arginae, Zenarginae, and some Dielocerinae, vein 1r is joined at or near the junction of Sc+R and the stigma or joined on Sc+R (Figs. 2-4). In the Atomacerinae, Sterictiphorinae, and Erigleninae, vein 1r has migrated so that it joins the stigma near or far apical to the junction of the stigma and Sc+R (Figs. 338, 442, 532, 533). This migration is also specialized.

In *Eriglenum*, *Mallerina*, and *Neurogymnia* a

crossvein (Cu_1) is retained at the base of the wing between veins $M+Cu_1$ and 1A (Fig. 131). It is only in the hindwing of *Neurogymnia* but in both wings of the other two genera. This is absent in all other genera.

Hindwing. The radial cell is closed only in the Arginae and Zenarginae (Fig. 2) and open in all other subfamilies (Figs. 89, 131). There are two enclosed cells, Rs and M. Only *Zenarge* lacks cell M. The anal cell may be present (Fig. 2) or absent (Figs. 89), but it is absent only in Atomacerinae and some genera of the Dielocerinae, Erigleninae, and Sterictiphorinae. In the genus *Trochophora*, the jugal area of the hindwing is extremely enlarged (Figs. 663, 664). This is unknown in other sawflies.

Species names

Unless otherwise indicated or obviously based on a geographical name or persons name, all new species group names are arbitrary combinations of letters and are to be treated as nouns in the nominative singular standing in apposition to the generic names.

Keys

Separate keys to subfamilies and genera are given. Since certain more obvious characters are used to separate genera, identification to genus is easier using a separate key, thus saving an extra step. The key to subfamilies is valid on a world basis.

Throughout this paper, sexes are indicated as follows: F = female, M = male. Locality records and dates are given essentially as they appear on specimen labels.

KEY TO SUBFAMILIES OF ARGIDAE

1. Anal cell of forewing complete, crossed by a crossvein (Fig. 1); midtibia with 2 preapical spines; hindwing with one closed cell (Rs), cell M absent; cenchri small, farther apart than the breadth of one (antennal flagellum of male simple) **Zenarginae**
- Anal cell of forewing petiolate (Fig. 2), base of vein $2A+3A$ atrophied; midtibia with one or no preapical spine; hindwing with cells Rs and M both present (Fig. 2); cenchri large, transverse, closer together than half the breadth of one **2**
2. Radial cell of hindwing closed, with accessory vein at apex (Fig. 2); antennae inserted above level of middle of eyes (Fig. 10); genal carina present or absent; lateral diagonal furrow present or absent on pronotum; tarsal claws simple; costa of forewing narrow and intercostal crossvein (Sc) present (Figs. 2-4); mid- and hindtibiae each with preapical spine in all New World species (Fig. 5) (antennal flagellum of male simple) **Arginae**
- Radial cell of hindwing open at apex (Fig. 89); antennae inserted at or below level of middle of eyes (Figs. 92, 157, 496); genal carina absent; pronotal furrow absent; tarsal claws simple, with basal lobe, or bifid; costa of forewing various and intercostal crossvein present or absent; tibiae without preapical spines **3**
3. Antennal flagellum of male simple (Fig. 91); tarsal claws simple with large acute basal lobe (Fig. 95; occurs elsewhere only in *Acrogymnidea* and *Themos*); each mandible 3-toothed (Fig. 93); forewing with intercostal crossvein (Sc) (Fig. 89); outer apical foretibial spine nearly twice length of inner spine **Atomacerinae**
- Antennal flagellum of male furcate (Fig. 273); tarsal claws various, usually simple (except above genera and *Neoptilia*); mandibles various; intercostal crossvein of forewing present or absent; apical foretibial spines subequal in length **4**
4. Costa narrower than intercostal area and intercostal crossvein present (Fig. 198) (except *Themos*, but mandibles extremely enlarged basally, Fig. 239; tarsal claws bifid or simple with basal lobe, Figs. 242, 243; maxillary and labial palpal segments less than 6 and 4, respectively, and labium without lobes, Fig. 241); palpi reduced, equal to or shorter than eye length, with maxillary palpus 3-6 segmented and labial palpus 3-4 segmented (Figs. 205, 215, 241, 262); mandibles simple or either one with small basal lobe (Figs. 216, 240); clypeus sometimes with semicircular central emargination (Fig. 217); head extremely enlarged and broadened behind eyes (Figs. 229, 230) **Dielocerinae**
- Costa narrow or swollen, intercostal crossvein absent (faint in *Eriglenum* and *Neurogymnia*); maxillary palpus 6-segmented, labial palpus 4-segmented, commonly longer than eye length, and labium trilobed (Figs. 271, 343, 344, 520); mandibles various; tarsal claws usually simple (with basal lobe in *Acrogymnidea*, bifid in *Neoptilia*); clypeus truncate or subtruncate; head commonly sharply narrowing behind eyes **5**

5. Each mandible with 2 or 3 large teeth (Figs. 134, 161, 191); intercostal crossvein present or absent, if present faint (in *Eriglenum* and *Neurogymnia*); both wings of *Eriglenum* and hindwing of *Neurogymnia* with basal crossvein (Cu_1) between veins $M+Cu_1$ and 1A (Fig. 131); tarsal claws simple; head transverse from above, broader than long, sharply narrowed behind eyes, sometimes (especially *Sericoceros*) much narrower than the enlarged thorax (Figs. 133, 158); cervical sclerites sometimes separated, the ventral arms joining the prosternum laterally to form a precoxal bridge (Fig. 164). **Erigleninae**
- Left mandible simple or with 2 or 3 small teeth or crenulations near center, right mandible with single tooth near base (Figs. 270, 391, 519); basal crossvein (Cu_1) and intercostal crossvein absent; tarsal claws simple, except *Acrogymnidea* and *Neoptilia*; head from above usually rounded, not notably broader than long, though usually sharply narrowed behind eyes (Figs. 269, 390, 497, 676); ventral arms of cervical sclerites usually narrowly rounded and meeting or nearly meeting on meson **Sterictiphorinae**

KEY TO GENERA

1. Tibiae without apical and preapical spines (tarsal segments swollen, segments 2-5 each much broader than long, Fig. 231; head from above extremely long and broadened behind eyes, Figs. 229, 230; clypeus with semicircular central emargination, Fig. 226; forewing with intercostal crossvein) **Pachylota**
- Tibiae with apical spines; mid- and hindtibiae with or without preapical spines 2
2. Mid- and hindtibiae each with a preapical spine (Fig. 5). 3
- Mid- and hindtibiae without preapical spines 4
3. Head with high, sharp carinae, interantennal carina Y-shaped above and bisecting supraclypeal area below, carina between lateral ocellus and eye, short carina on lower inner orbits, and transverse carina above clypeus (Fig. 10); genal carina present; pronotum without diagonal furrows; female sheath pincer-like (Figs. 11-13) . . . **Scobina**
- Head without carinae, sometimes with low or rounded carina only on interantennal area and supraclypeal area appearing carinate at center; genal carina absent; pronotum with diagonal furrow from about area of tegula to anterolateral margin; female sheath broad (Figs. 70, 71). **Arge**
4. Tarsal claws modified, simple with large acute basal lobe or bifid with long inner tooth (Figs. 95, 242, 243, 294, 469) 5
- Tarsal claws simple. 8
5. Hindwing without anal cell (Fig. 89); forewing with intercostal crossvein (Fig. 89); each mandible with 3 large teeth (Fig. 93); antennal flagellum of male simple (Fig. 91) (tarsal claw simple with acute basal lobe, Fig. 95; radial cell of forewing open, Fig. 89; small, ca. 5-6 mm long, black or red and black). **Atomacera**
- Hindwing with anal cell (Fig. 236); forewing without intercostal crossvein (Figs. 236, 466); left mandible simple or with one or two small teeth or crenulations near center and right mandible with one basal tooth (Fig. 240); antennal flagellum of male furcate (Fig. 203). 6
6. Mandible extremely enlarged and inflated at base (Fig. 239); palpi short, maxillary palpus 3-segmented and labial palpus 3-segmented, labium without lobes (Fig. 241); each tarsal claw with long inner tooth or foreclaw with long inner tooth and mid- and hindclaws simple with basal lobe (Figs. 242, 243) (head from above enlarged and broadened behind eyes; usually large, ca. 10 mm or more long). **Themos**
- Mandible not so enlarged at base, narrow and tapering to apex; palpi long, maxillary palpus 6-segmented, labial palpus 4-segmented, labium trilobed (Figs. 296, 472); tarsal claws with long inner tooth or simple with basal lobe, never a combination of both. 7
7. Tarsal claw simple with large basal lobe (Fig. 294); high Y-shaped interantennal carina present which bisects supraclypeal area below (as in Fig. 268); eyes large and converging below, lower interocular distance much less than eye length (Fig. 268); radial cell of forewing open at apex. **Acrogymnidea**
- Tarsal claw bifid, with long inner tooth, without basal lobe (Fig. 469); interantennal area low and rounded, without sharp carina; eyes smaller, not so converging below, lower interocular distance about equal to to greater than eye length (Fig. 468); radial cell of forewing usually closed. **Neoptilia**
8. Jugal area of hindwing enormously expanded (Figs. 663, 664). **Trochophora**
- Jugal area of hindwing normal (as in Figs. 338, 442, 495, 532, 533). 9

9. Radial cell of forewing with crossvein near apex, the cell apical to the crossvein closed (Fig. 144) (basal crossvein Cu_1 between $M+Cu_1$ and 1A present in hindwing only, as in Fig. 131; mandibles with 2 or 3 sharp teeth, Fig. 145; palpi as in Fig. 146; sheath broad from above, Fig. 149) *Neurogymnia*
- Radial cell of forewing open or closed at its apex, but without a crossvein 10
10. Radial cell of forewing closed at its apex and anal cell of hindwing present (Figs. 131, 338, 442, 495) 11
- Radial cell of forewing closed at its apex and anal cell of hindwing absent, or radial cell of forewing open at its apex and anal cell of hindwing present or absent 20
11. Basal crossvein Cu_1 between veins $M+Cu_1$ and 1A present in forewing and hindwing (Fig. 131); intercostal crossvein (Sc) present but may be difficult to see 12
- Basal crossvein Cu_1 absent; intercostal crossvein present or absent 13
12. Head from above strongly narrowing behind eyes (Fig. 133); 10 mm or less in length (maxillary palpus 6 segmented, longer than eye length, labial palpus 4-segmented, Fig. 135; each mandible 3-toothed, Fig. 134; sheath pincer-like from above, Fig. 138) *Erigenum*
- Head from above broadened behind eyes (as in Figs. 229, 230); ca. 16 mm in length (according to Malaise, 1942, maxillary palpus 4-segmented, labial palpus 3 segmented, shorter than eye length; sheath from above not pincer-like, Fig. 223) *Mallerina*
13. Intercostal crossvein (Sc) present in forewing, basal anal cell absent (Figs. 198, 256); large, 12 mm or more long; head from above broadened behind eyes (as in Fig. 201) 14
- Intercostal crossvein absent and basal anal cell usually present in forewing; usually smaller than 10 mm long and head from above sharply narrowing behind eyes 15
14. Clypeus with central, semicircular emargination (Fig. 217); forewing with 4 cubital cells (as in Fig. 198); female antenna with small lobe at base of flagellum (Fig. 214). *Digelasinus*
- Clypeus truncate (Fig. 257); forewing with 3 cubital cells (Fig. 256); female antennal flagellum without lobe (Fig. 264) *Topotrita*
15. Last closed cubital cell of forewing quadrate, about as long on the radius as on the cubitus (Figs. 305, 388, 442); palpal segments of uniform width or 3rd segment of labial palpus and/or 4th segment of maxillary palpus slightly expanded (Figs. 392, 447). 16
- Last closed cubital cell of forewing elongate, longer on the radius than on the cubitus, except some *Ptilia* (Figs. 338, 377); 3rd or 2nd and 3rd segments of labial palpus and 4th segment of maxillary palpus expanded, much broader than other segments (Figs. 343, 344, 380, 500). 18
16. Lower interocular distance greater than eye length, eyes small, slightly converging below, interantennal area rounded (Fig. 307); maxillary palpus shorter than eye length, all palpal segments of uniform width (Fig. 309) *Adurgoa*
- Lower interocular distance shorter than eye length, eyes large and converging below, interantennal carina present, sharp (Figs. 389, 443); maxillary palpus longer than eye length, palpi without expanded segments or 3rd segment of labial palpus and 4th segment of maxillary palpus expanded (Figs. 392, 447) 17
17. First antennal segment large, bulbous, much broader than other segments (Fig. 445); apical anterior margin of radial cell of forewing close to anterior margin of wing, with none or a very short accessory vein (Fig. 442); interantennal carina high and sharp (Fig. 443); palpi without expanded segments or sometimes with 3rd segment of labial palpus slightly expanded (Fig. 447) (most species orange with black marks) *Manaos*
- First antennal segment normal, not broader than rest of antenna (Fig. 394); apical anterior margin of radial cell of forewing removed from anterior margin of wing, with long accessory vein (Fig. 388); interantennal carina various; palpi usually with 3rd segment of labial palpus and 4th segment of maxillary palpus expanded (Fig. 392) *Hemidianeira* (in part)
18. Lower interocular distance greater than eye length, eyes small and not so converging below (Fig. 378); from above head broadened behind eyes; usually longer than 10 mm; female lancet long and multisegmented (Figs. 385-387) *Durgoa*
- Lower interocular distance shorter than or subequal to eye length, eyes large and converging below (Figs. 339, 496); head from above sharply narrowing behind eyes; size various, mostly smaller than 10 mm long; female lancets short, some nearly triangular (Figs. 354-362, 505-509) 19

19. Interantennal area without a carina, usually smooth and somewhat depressed (Figs. 496, 497); flagellum of female antenna compressed and tapering to acute apex (Fig. 498); sheath in lateral view acute at apex (Figs. 501-504); lancets short and triangular (Figs. 505-509); 2nd and 3rd segments of labial palpus expanded (Fig. 500) (commonly yellowish species, wings partly yellowish) *Ptilia*
- Interantennal area with small or large carina (Fig. 339); flagellum of female various, but usually round or oval and rounded at apex (Figs. 340, 341); sheath in lateral view rounded at apex, usually with distinct scopae (Figs. 345-353); lancets more elongate (Figs. 354-362); usually only 3rd segment of labial palpus expanded (Figs. 343, 344) (color various, but commonly red and black) *Didymia*
20. Radial cell of forewing closed at its apex and anal cell of hindwing absent (Figs. 198, 653, 674) **21**
- Radial cell of forewing open at its apex, anal cell of hindwing present or absent **24**
21. Intercoastal crossvein (Sc) of forewing present (that of male sometimes faint) and forewing without basal anal cell (Fig. 198); clypeus with central, semicircular emargination (Fig. 200); eyes small and far apart (Fig. 200); head from above broadened behind eyes (Fig. 201) (lancet long, multisegmented, Figs. 207-209). *Dielocerus*
- Intercoastal crossvein absent and basal anal cell present in forewing; clypeus usually truncate; eyes small or large and closer together (Figs. 389, 675); head from above usually sharply narrowing behind eyes **22**
22. Last closed cubital cell of forewing much longer on the radius than on the cubitus and eyes large and converging below with lower interocular distance shorter than eye length (maxillary palpus longer than eye length, with 3rd segment of labial palpus and 4th segment of maxillary palpus expanded (Fig. 655) *Triptenus*
- Last closed cubital cell of forewing as long as or shorter on radius than on cubitus (Figs. 388, 674) or eyes not distinctly converging, with lower interocular distance longer than eye length **23**
23. Eyes large, lower interocular distance shorter than or subequal to eye length (Fig. 389); female antennal flagellum tapering and usually curved (Fig. 394); maxillary palpus longer than eye length and 2nd segment of labial palpus and sometimes 4th segment of maxillary palpus enlarged (Figs. 392, 393) *Hemidianeura* (in part)
- Eyes small, lower interocular usually greater than eye length (Fig. 675); female antennal flagellum more clublike and rounded at apex (Fig. 680); maxillary palpus subequal to or shorter than eye length, palpi with all segments uniformly narrow or sometimes 3rd segment of labial palpus slightly enlarged (Figs. 678, 679) *Zynzus*
24. Radial cell of forewing open at its apex and anal cell of hindwing present (Figs. 267, 323, 532, 533). **25**
- Radial cell of forewing open at its apex and anal cell of hindwing absent (Figs. 156, 514, 619) **31**
25. Interantennal carina high, sharp, Y-shaped, bisecting supraclypeal area below (Fig. 268) (eyes large, lower interocular distance less than eye length; maxillary palpus longer than eye length, without enlarged segments, 3rd segment of labial palpus sometimes enlarged, Fig. 271; last closed cubital cell of forewing short, as long on radius as on cubitus, Fig. 267) *Acrogymnia*
- Interantennal carina straight or interantennal area rounded **26**
26. Eyes large and converging below, lower interocular distance less than eye length (Fig. 646); last closed cubital cell of forewing longer on radius than on cubitus (Fig. 644) (female antennal flagellum flattened, tapering to acute apex, Fig. 645; maxillary palpus longer than eye length, without enlarged segments, labial palpus with 3rd segment enlarged, Fig. 649; mostly yellow, wings yellowish with apices black) *Trailia*
- Lower interocular distance greater than or subequal to eye length (as in Fig. 324); last closed cubital cell of forewing various **27**
27. Forewing without basal anal cell (head from above depressed between eyes, Fig. 318; palpi shorter than eye length, segments uniformly slender; female antennal flagellum clublike, shorter than head width, Fig. 319; malar space broader than diameter of front ocellus; northern Mexico and western U.S.) *Aprosthem*
- Forewing with basal anal cell (Fig. 532) **28**
28. Hindtibia produced into a collar at apex, tibial spines arise at base of collar and do not extend beyond its apex (Fig. 328) (eyes small, not distinctly converging, lower interocular distance greater than eye length, Fig. 324; usually without interantennal carina; palpi short, without enlarged segments, Fig. 327) *Brachyphatnus*
- Hindtibia without collar at apex, tibial spines arise at apex of tibia (as in Fig. 5) **29**
29. Left mandible simple or with several small crenulations at center, right mandible with basal tooth (Figs. 536, 537); last closed cubital cell of forewing short, as long or a little longer on radius than on cubitus (Figs. 532, 533); hindcoxae contiguous; head not notably narrower than thorax; female lancets usually long and multisegmented (Figs. 570-604) (all palpal segments narrow or sometimes 3rd segment of labial palpus enlarged, Figs. 538-540) *Sphacophilus*

- Each mandible with 3 sharp teeth or right mandible with 2 sharp teeth (Figs. 161, 191); last closed cubital cell of forewing markedly longer on radius than on cubitus (Fig. 156); hindcoxae separated; head short and broad from above, usually much narrower than enlarged thorax (Figs. 157, 158); female lancets short and triangular, with 10 or fewer segments (Figs. 170-183, 195) (palpi usually shorter than eye length, without enlarged segments, or with 3rd segment of labial palpus slightly enlarged) 30
- 30. Each mandible with 3 sharp teeth (Fig. 161); antennal length 1 1/2X or less head width (Fig. 159); segments of palpi uniformly narrow (Figs. 162, 163) *Sericoceros* (in part)
- Left mandible with 3 sharp teeth, right mandible with 2 sharp teeth (Fig. 191); antennal length 2X head width (Fig. 193); 3rd segment of labial palpus slightly enlarged (Fig. 192) *Subsymmia*
- 31. Female antennal flagellum flattened, tapering to acute apex (Fig. 622); interantennal carina sharp, sometimes Y-shaped above and bisecting part of supraclypeal area below (Fig. 620) (eyes large and converging below, lower interocular distance usually less than eye length, Fig. 620; maxillary palpus longer than eye length, segments not enlarged, 3rd segment of labial palpus usually enlarged, Fig. 624; last closed cubital cell of forewing longer on radius than on cubitus, Fig. 619; female sheaths usually slender, without scopae, Figs. 625-629) *Tanymeles*
- Antenna clublike, compressed, oval or rounded in cross section, apex rounded (Figs. 516, 518); interantennal carina short or not developed (palpal segments usually of uniform width, not or only slightly enlarged, Figs. 374, 520) 32
- 32. Last closed cubital cell of forewing short, as long or slightly longer on radius than on cubitus (Fig. 514) (female antenna usually much shorter than head width, Figs. 516, 518; interantennal carina short, sometimes rounded; lower interocular distance greater than or subequal to eye length (Fig. 515); female sheath with scopae, Figs. 522-524; usually 6 mm or less in length) *Schizocercella*
- Last closed cubital cell of forewing longer on radius than on cubitus (Fig. 156) (usually 8 mm or more in length) 33
- 33. Each mandible with 3 sharp teeth (Fig. 161); eyes small, only slightly converging below, lower interocular distance much longer than eye length (Fig. 157); head from above strongly narrowing behind eyes, and not as broad as enlarged thorax (Fig. 158); malar space as broad or broader than diameter of front ocellus (Fig. 157); hindcoxae separated (female lancets short and triangular, Figs. 170-183; female sheaths short and broad, Fig. 167) *Sericoceros* (in part)
- Left mandible simple, right mandible with basal tooth (as in Fig. 342); eyes large and converging below, lower interocular distance subequal to eye length; head from above broadened behind eyes, and breadth of head subequal to breadth of thorax; malar space nearly linear; hindcoxae contiguous (sheath rounded at apex in lateral view, very slender from above, Figs. 375, 376). *Duckeana*

Subfamily ZENARGINAE

Zenarginae Rohwer 1918: 434.— Benson 1938: 373.—
Benson 1963: 634.

Antennal flagellum of both sexes simple; antenna inserted on head at about midlength of eyes. Genal carina present; each mandible with one large subapical tooth; maxillary palpus 6-segmented, labial palpus 4-segmented. Pronotum with indication of furrow from near tegula to anterolateral margin; ventral arms of cervical sclerites nearly truncated and broadly meeting on meson; cenchri small and much farther apart than the breadth of one. Forewing with anal cell complete and crossed by a crossvein (a) (Fig. 1), basal part of vein 2A+3A not atrophied; costa not swollen, narrower than intercostal area; intercostal crossvein present; distance between M and Rs+M on Sc+R about half

length of vein M; 1r connected to stigma near junction of stigma and Sc+R. Hindwing with cell M absent, Rs present, anal cell absent. Two preapical spines on midtibia, one preapical spine on hindtibia; outer foretibial spine with short lateral tooth; tarsal claws simple.

The complete anal cell of the forewing, two preapical spines on the midtibia, absence of cell M in the hindwing, small lateral tooth of the outer foretibial spine, and small cenchri are not found in any other Argidae.

This subfamily is mentioned because of its unique features in the Argidae and because it is the only subfamily not represented in the neotropics. One genus with one species and two subspecies, *Zenarge turneri* Rohwer and *Z. turneri rabus* Moore, are known in Australia. Hosts are *Callitris* and *Cupressus*, both Cupressaceae. No other argids are known to feed on coniferous plants.

Subfamily ARGINAE

Arginae Rohwer 1918: 435.—Benson 1938: 373.—Benson 1963: 634.

Athermantinae Benson 1938: 375.

Athermantini Benson 1938: 373.—Benson 1963: 634.

Sjoestedtini Benson 1938: 375.

Tanyphatnideini Benson 1938: 375.

Argini Benson 1963: 634.

Scobinini Benson 1963: 634.

Antennal flagellum of both sexes simple (Fig. 6); antennae inserted on head above level of middle of eyes (Fig. 10). Head with or without sharp carinae on frontal area, inner orbits, between ocelli and eye; with or without genal carina. Maxillary palpus 6-segmented, labial palpus 3-segmented (Fig. 7); labium trilobed; each mandible simple or one or the other with basal tooth (Fig. 8). Pronotum with or without a lateral diagonal furrow; cenchri large, transverse, much closer together than half the breadth of one. Forewing (Figs. 2, 66) with costa narrower than intercostal area; intercostal crossvein (Sc) present; vein 1r joined at or near the junction of Sc+R and stigma, sometimes on Sc+R; radial cell closed; Rs+M and M usually meet Sc+R at or near the same point. Hindwing (Figs. 2, 66) with radial cell closed; anal cell present. Mid- and hindtibiae each with one preapical spine (Fig. 5) (in New World genera); tibial spines long, greater than width of apices of tibiae; inner foretibial spine nearly twice length of outer spine; foretibial spines simple; tarsal claws simple.

Benson (1963) included three tribes, the Athermantini, Scobinini, and Argini. The latter two are represented in the Western Hemisphere by *Scobina* and *Arge*, respectively. Benson included the neotropical *Scobina* and *Stelidarge* (here considered a synonym of *Scobina*), and the Australian *Antargidium* in the Scobinini. The Athermantini included five or six small southeast Asian and African genera. Two genera occur in the New World and all others are Australian or Asian. A reevaluation of the world fauna is needed to justify tribal groupings.

All Arginae treated here have the male antennal flagellum simple, vein 1r of the forewing joining Sc+R near the junction of Sc+R and the stigma, the radial cell of the hindwing closed, the mid- and hindtibiae with one preapical spine, and simple tarsal claws. Two other characters found in some of the Arginae but not in other argids (except Zenarginae) are the presence of a genal carina and other carinae on the head and a furrow on the pronotum from about the area of the tegula to the anterolateral margin.

Genus **SCOBINA** Lepeletier and Serville

Scobina Lepeletier and Serville 1828: 574. Type species: *Hylotoma melanocephala* Lepeletier. Monotypic.

Caloptilia Ashmead 1898: 212. Preoccupied by *Caloptilia* Huebner, 1825. Type species: *Caloptilia townsendi* Ashmead. Orig. desig.

Labidarge Konow 1899a: 309-310. Type species: *Labidarge bolivari* Konow. Desig. by Rohwer 1911a.

Stelidarge Konow 1901: 58. **New synonymy.** Type species: *Stelidarge diptycha* Konow. Monotypic.

First and 2nd antennal segments each about as long as broad; 3rd segment usually flattened (Fig. 6). Head with carinae as in Fig. 10, with transverse carina along clypeal margin, supraclypeal carina branching near interantennal area with branches nearly reaching lateral ocelli, carina extending laterally from each lateral ocellus to inner margin of each eye, short inner orbital carina on lower portion of eye; genal carina present. Clypeus subtruncate to slightly emarginate at center; malar space slightly less than to slightly more than diameter of front ocellus; lower interocular distance usually greater than eye length, eyes slightly converging below; labrum broadly rounded to truncate; maxillary palpus 6-segmented, labial palpus 4-segmented, segments of uniform width (Fig. 7), maxillary palpus longer than eye length. Pronotum without diagonal furrow from area near tegula to anterolateral margin. Forewing (Fig. 2) with radial cell closed; basal anal cell present or absent; intercostal crossvein (Sc) present. Hindwing (Fig. 2) with radial cell closed; anal cell present. Mid- and hindtibia each with preapical spine (Fig. 5); apical tibial spines usually longer than width of tibiae at apices; inner foretibial spine about half length of outer one; tarsal claw simple. Female sheath with narrow, usually cylindrical scopae, narrowing apically in lateral view, pincer-like in dorsal view (Figs. 11-13).

Representatives of *Scobina* are recognized by the presence of a preapical spine on the mid- and hindtibiae, presence of carinae on the head, presence of a genal carina, lack of a pronotal groove, closed radial cell of the hindwing, simple antennal flagellum of the male, and the pincer-like female sheath.

Malaise (1937) first characterized *Scobina* and synonymized *Labidarge* and *Caloptilia*. Prior to Malaise, most species were placed in *Hylotoma* by Dalla Torre (1894) or *Labidarge* and *Stelidarge* by Konow (1907a). *Stelidarge* was separated from *Labidarge*, or more recently from *Scobina*, only by the absence of a basal anal cell in the forewing. This is too variable for

use as a generic character. The stub of vein 2A+3A is sometimes faint, or even partially present, with the result that some species were described in *Stelidarge* even though they are only variations of the same species in *Scobina*. I could not find other characters to separate the two groups and therefore am treating all species as *Scobina*.

Besides the presence or absence of the basal anal cell in the forewing, another difference in forewing venation is apparent. A number of species have veins M and Rs+M widely separated on Sc+R and vein M meeting Sc+R basal to Sc (Fig. 3). Most species have veins M and Rs+M meeting near the same point on Sc+R and vein M meeting Sc+R apical to Sc (Fig. 2). This difference could also be used for groupings. Those that have the veins widely separated on Sc+R are *dorsalis*, *fascialis*, *lurida*, *melanaria*, *zantara*, *dibapha*, *collaris*, *brusa*, and *eximia*. In one species, *diagonica*, Sc is diagonal and subparallel with M (Fig. 4), but in all other species Sc is perpendicular to Sc+R.

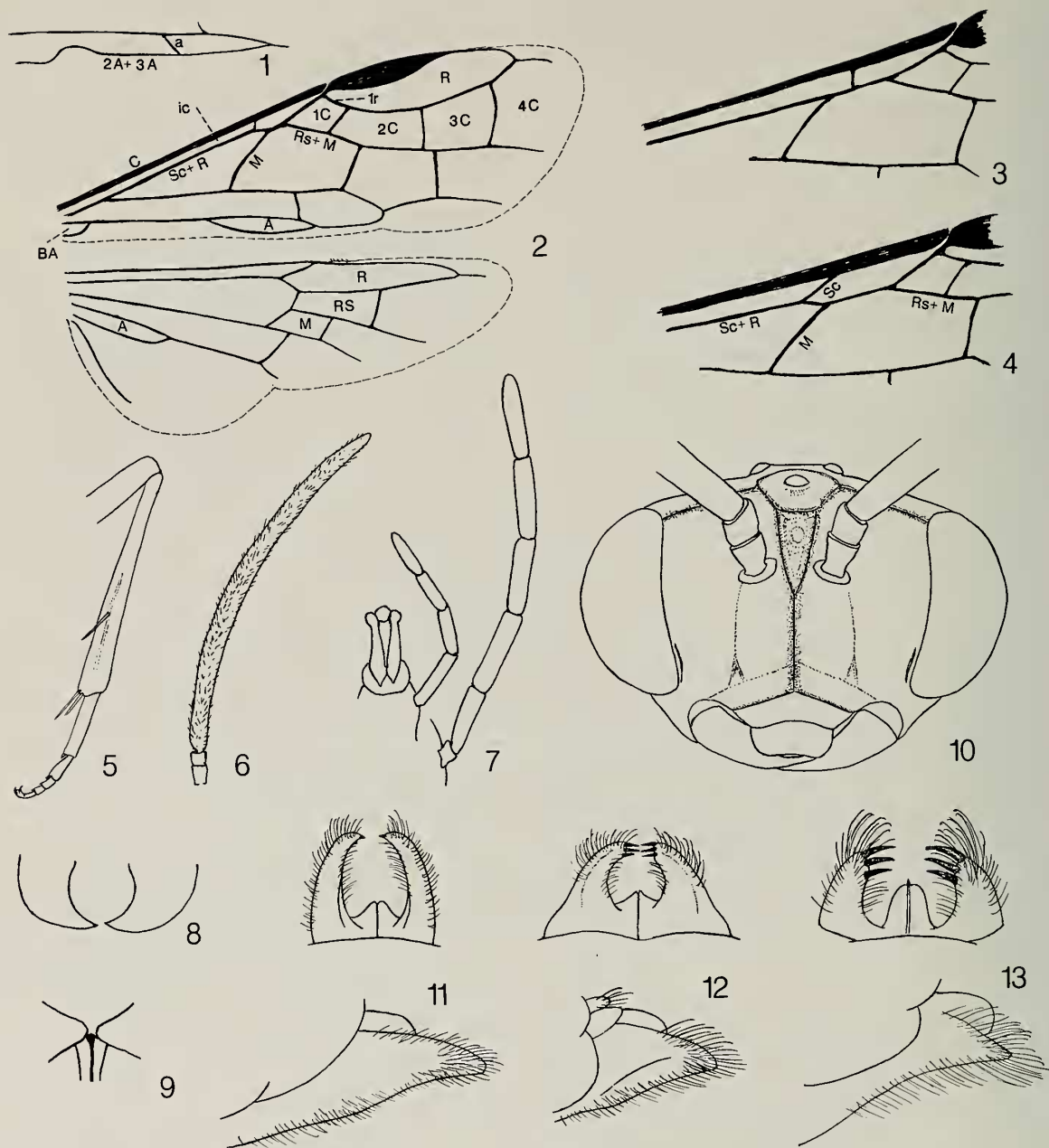
Konow (1907a) gave a key to species, most of them as *Labidarge*, but a few under *Scobina* and *Stelidarge*, and Forsius (1925a) gave a key to the species of *Stelidarge* known to him. These have been the only references to aid in species identification.

Scobina is one of the most commonly collected groups of sawflies in the neotropics. Little is known of their habits and host plants, but some adults have been captured from various flowers and two species, *S. guatemalensis* and *S. consobrina*, have been associated with *Sida* sp. About 50 species are known, distributed from Mexico to northern Argentina.

Color variation is common, and sexes of most species are very different. The following key is best for females, though males when known and if that sex was described are included. Most variation apparently occurs in males, so keying single males should be done cautiously.

KEY TO SPECIES

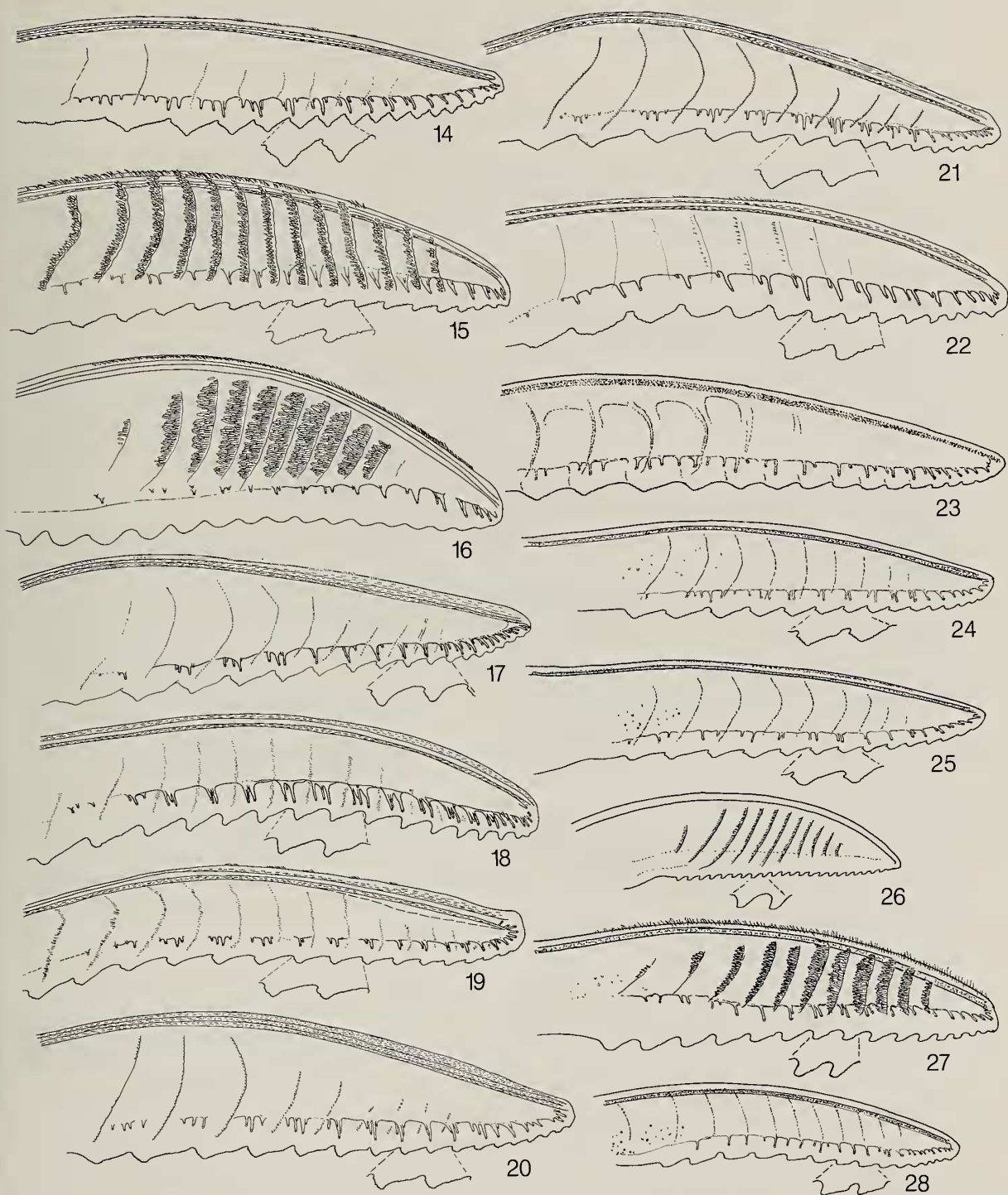
1. Head yellow, only ocellar area or narrow transverse band between eyes through ocelli may be black; wings yellow with apex or base and apex black 2
- Head black, or black above and behind eyes and whitish below ocelli to mouthparts; wings uniformly hyaline, uniformly blackish, or bicolored 4
2. Forewing yellow at center, black at base and apex (thorax yellow, abdomen yellow with black apex; femora sometimes black; hindtibia black with white at base; hindbasitarsus white, rest of hindtarsal segments black; lancet similar to *poecila*, Fig. 21; male genitalia as in Fig. 57) *consobrina* (Norton)
- Forewing yellow with only apex black, veins at extreme base may be blackish 3
3. Hindbasitarsus white, at most black at extreme apex; lancet similar to that of *poecila*, Fig. 21; male genitalia as in Fig. 60 (variable in color with hindcoxa black or yellow, hindfemur black to yellow, and mesonotum yellow or with black stripes; mesosternum yellow) *guatemalensis* (Dalla Torre) (in part)
- Hindtarsus all black; lancet as in Fig. 24; male genitalia as in Fig. 59 (amount of black on hindfemur variable; mesosternum usually black) *lepida* (Klug) (in part)
4. Femora, at least hindfemur, black, half or more black, or black on entire inner surface 5
- Femora, at least hindfemur, yellow or orange, at most hindfemur black at base and/or apex, but black less than 1/2 of surface 26
5. Forewing bicolored, yellow with black apex. 6
- Forewing uniformly blackish, hyaline, or dark yellowish, or hyaline with apex somewhat more blackish (costa and stigma may be pale) 8
6. Head and legs entirely black; mesonotum except sometimes scutellum and/or lateral lobes black; abdomen black with basal 4-5 segments or only basal 4-5 terga orange at center (lancet as in Fig. 25; male genitalia as in Fig. 49) ... *tina*, new species
- Face below and just above antennae white; tibiae partly white; mesonotum mostly yellow; abdomen mostly or at least basal sterna yellow 7



Figs. 1-13. 1, Anal area of forewing of *Zenarge turneri*. 2-13, *Scobina*. 2, Forewing and hindwing of *S. melanocephala*. 3, Anterior central portion of forewing of *S. fascialis*. 4, Anterior central portion of forewing of *S. diagonica*. 5, Hindtibia and tarsus of *S. melanocephala*. 6, Female antenna of *S. melanocephala*. 7, Palpi of *S. melanocephala*. 8, Mandibles of *S. melanocephala*. 9, Cervical sclerites of *S. melanocephala*. 10, Front view of head of *S. melanocephala*. Dorsal and lateral views of sheaths of 11, *S. bolivari*; 12, *S. carbonaria*; 13, *S. bonplandi*. (ic = intercostal area; BA = basal anal cell; 1C = first cubital cell (1R₁); 2C = second cubital cell (1R_s); 3C = third cubital cell (2R_s); 4C = fourth cubital cell (3R_s); R = radial cell (2R₁ in forewing; R₁ in hindwing); lateral and dorsal views are shown for most female sheaths.).

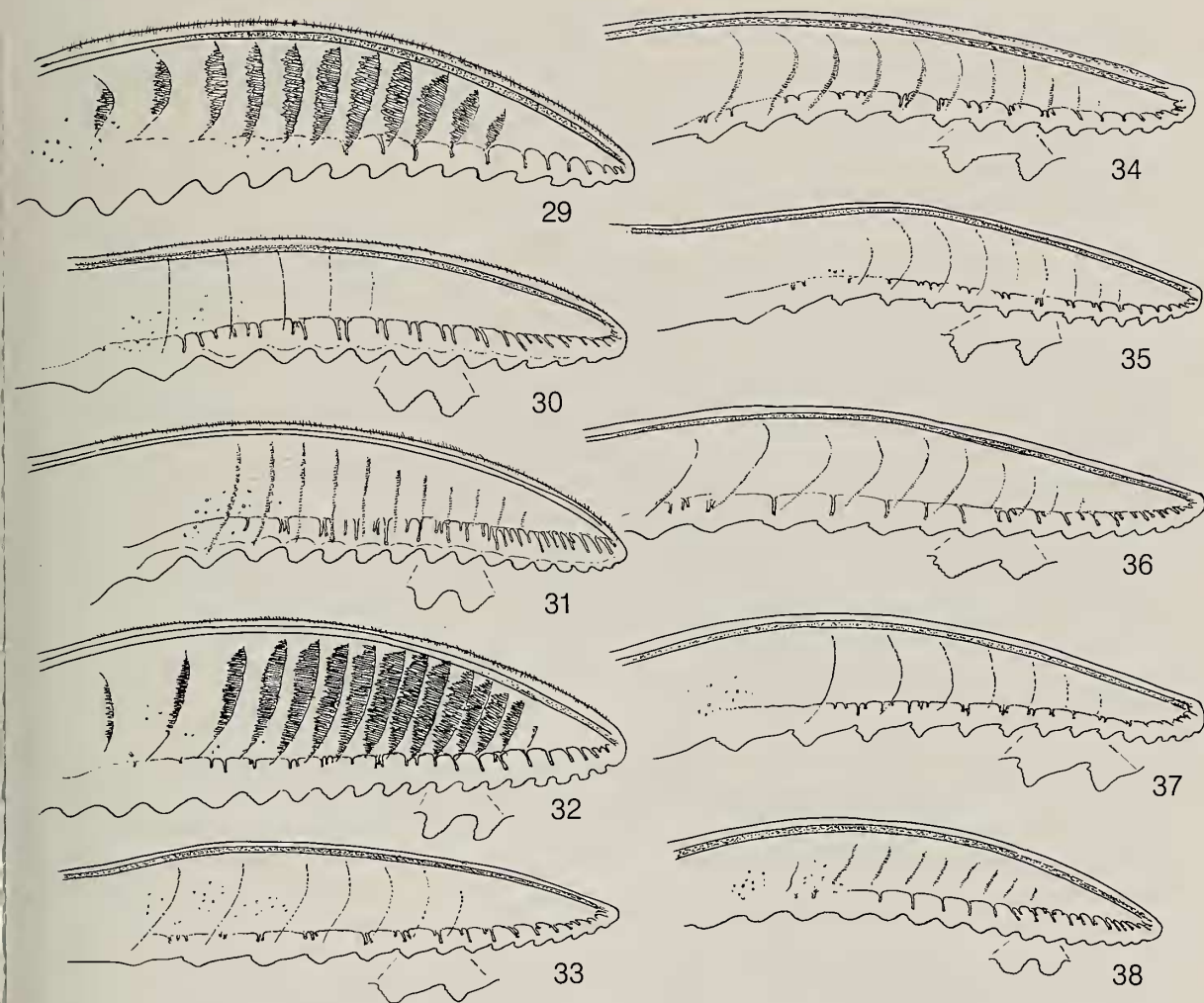
7. Hindbasitarsus white, tibiae black with basal 1/3 white; abdominal terga mostly black and abdomen black at apex; thorax yellow with mesosternum black; sheath in dorsal view without stout spines (as in Fig. 11) (lancet similar to that of *poecila*, Fig. 21; male genitalia as in Fig. 60) *guatemalensis* (Dalla Torre) (in part)
- Hindtarsus black, tibiae white with basal 1/4 of mid- and hindtibiae black; apical 3-4 abdominal segments black, rest yellow; thorax orange with lower 1/2 mesepisternum and spot on each side of mesosternum black; sheath in dorsal view with 3 stout spines (as in Fig. 13) *bipartita* (Cameron)
8. Entirely black, tibiae and/or base of femora may be whitish 9
- Some of thorax or abdomen reddish or yellow 13
9. In forewing, vein M meets Sc+R basal to Sc, distance between Rs+M and M on Sc+R half or more as long as vein M (Fig. 3) (basal anal cell present in forewing; scopae of sheath stout in dorsal view with large inner apical spines, as in Fig. 13). 10
- In forewing, vein M meets Sc+R apical to Sc, veins Rs+M and M meet Sc+R at nearly the same point (Fig. 2). 12
10. Mid- and hindlegs black; forewing uniformly blackish (lancet as in Fig. 18, without annular spines; sheath as in Fig. 13; male genitalia as in Fig. 56) *dorsalis* (Klug)(in part)
- Tibiae white with apical 1/3 or less black; basal 1/3 to 1/2 of femora may be white; forewing hyaline, may be blackish apically 11
11. Forewing uniformly hyaline with blackish spot below anterior half of stigma; basal 1/3 to 1/2 of mid- and hindfemora whitish; tibiae white with extreme apices black; tarsi black; lancet as in Fig. 27 *brusa*, new species
- Forewing hyaline with apex beyond stigma blackish; femora black; tibiae white with black stripes on inner surfaces; basal two segments of tarsi mostly white; lancet as in Fig. 26 *eximia* (Kirby)
12. Basal anal cell absent in forewing; scopae of sheath stout in dorsal view (as in Fig. 12) *carbonaria* (Klug)
- Basal anal cell present in forewing; scopae of sheath slender in dorsal view (as in Fig. 11) (lancet similar to that of *melanocephala*, Fig. 14; male genitalia as in Fig. 53) *styx* Malaise
13. Hindtibia mostly white or white at base; abdomen black or with basal terga pale and with lateral longitudinal white line or marks 14
- Hindtibia black; abdomen black or orange, but without lateral white line. 15
14. In forewing, vein M meets Sc+R apical to Sc, veins M and Rs+M meet Sc+R at nearly the same point (Fig. 2); abdomen with basal terga pale at center and with a lateral white line; length over 6.0 mm; male genitalia as in Fig. 45; lancet as in Fig. 20 *torquata* (Konow) (in part)
- In forewing, vein M meets Sc+R basal to Sc, distance between veins M and Rs+M on Sc+R half as long as or longer than vein M (Fig. 3); abdomen black; small, 5.5-6.0 long; male genitalia as in Fig. 51; lancet as in Fig. 28 *melanaria* (Klug)
15. Thorax black (abdomen orange, basal plates sometimes and apical 3 segments black, varying to abdomen nearly all black above with basal sterna orange; lancet similar to that of *notaticollis*, Fig. 23; male genitalia as in Fig. 50). .
..... *inculta* (Konow)
- Mesothorax partly red or yellowish 16
16. Abdomen mostly orange with apical segment and sheath black (female with thorax orange with cervical sclerites, center of pronotum, and band separating mesopleuron and mesosternum black; sheath slender in dorsal view, as in Fig. 11; male similar but mesoprescutum and mesonotal lateral lobes, mesosternum, and lower part of mesepisternum black) *nigripes* (Konow)
- Abdomen black or black above and pale below. 17
17. Mesopleuron black, if some orange then only upper 1/4 or less. 18
- Mesopleuron more than 1/4 or entirely orange 19
18. Scopae of sheath slender in dorsal view, with slender spines on inner margin at apex (Fig. 11); in forewing, vein M meets Sc+R apical to Sc, veins M and Rs+M meet Sc+R at nearly the same point (Fig. 2); female lancet similar to that of *poecila*, Fig. 21; male genitalia as in Fig. 47. *strophosa* (Konow)(in part)
- Scopae of sheath stout in dorsal view, with 3 stout spines on inner margin near apex (Fig. 13); in forewing, vein M meets Sc+R basal to Sc, distance between veins M and Rs+M on Sc+R half or more length of vein M (Fig. 3); female lancet as in Fig. 18; male genitalia as in Fig. 56 *dorsalis* (Klug) (in part)
19. Basal anal cell of forewing absent. 20
- Basal anal cell of forewing present (Fig. 2). 22

20. Thorax orange with mesosternum and most of mesepisternum black; mesoprescutum and sometimes mesoscutellum black (legs black; male genitalia as in Fig. 58). *stigmaticollis* (Klug)
- Thorax orange but metapleuron, metanotum, and cervical sclerites may be partly black; male with mesoprescutum black. 21
21. Legs black (lancet similar to that of *melanopyga*, Fig. 19; male genitalia as in Fig. 43) *rubricollis* (Klug)
- Legs black with apical 1/3-1/5 of femora orange, fore- and midcoxae red (metapleuron, metanotum, and cervical sclerites black) *geniculata* (Klug)
22. Pronotum and mesonotum orange 23
- Usually most of pronotum and/or mesoprescutum black. 24
23. Forewing with vein M meeting Sc+R basal to Sc, distance between M and Rs+M on Sc+R about as long as M (Fig. 3); lancet with lateral armature (as in Fig. 29); scopae of sheath stout in dorsal view, with 3 stout spines (as in Fig. 13). *collaris* (Klug)
- Forewing with M meeting Sc+R apical to Sc, veins M and Rs+M meeting Sc+R at nearly the same point (Fig. 2); lancet without lateral armature (Fig. 17); scopae of sheath slender in dorsal view (Fig. 11). . . . *paradorsalis*, new species
24. Femora white, hindfemur with entire inner surface black (lancet as in Fig. 33; male genitalia as in Fig. 63) *emora*, new species (in part)
- Legs or at least hindleg entirely black 25
25. Most of or middle of pronotum blackish and infuscate blackish spot on anterior 1/2 of mesoprescutum; mesosternum black; Brazil (female unknown) *infuscata* (Klug)
- Color variable, but usually most of pronotum and most of mesoprescutum black, but either one may be mostly reddish; mesosternum orange; northeastern Argentina to Venezuela (lancet similar to that of *poecila*, Fig. 21; male genitalia as in Fig. 47; abdominal sterna may be whitish) *strophosa* (Konow) (in part)
26. Wings bicolored, contrasting yellow and black 27
- Wings uniformly pale or dark, costa and stigma may be pale 33
27. Wings black at base and apex, yellow at center 28
- Wings yellow with black only at apex 29
28. Hindbasitarsus white, rest of hindtarsal segments black; hindtibia white with black apex in female or mostly black with only base white in male; in forewing, vein M meets Sc+R basal to Sc, distance between M and Rs+M on Sc+R half or more as long as vein M (Fig. 3); lancet as in Fig. 30; male genitalia as in Fig. 48 (mesonotal lateral lobes with black marks; face white; carina on face high, sharp, and protruding, eyes large). *fascialis* (Norton)
- Hindtarsus and hindtibia black; in forewing, vein M meets Sc+R apical to Sc, veins M and Rs+M meet Sc+R at nearly the same point (Fig. 2); lancet as in Fig. 21; male genitalia as in Fig. 40 (carina on face distinct but not as protruding as above; face black varying to brownish and white; mesonotum orange or with black marks on prescutum and/or lateral lobes). *poecila* (Klug)
29. Inner apical surface of scopae with very stout spines (Fig. 13); lancet with lateral armature or well sclerotized and round at apex (Figs. 31, 32) 30
- Spines at apex of scopae of sheath slender (Fig. 11); lancet without lateral armature, or pointed at apex (Fig. 24) 31
30. Hindtibia and tarsus black (base of tibia may be orange); head white below antennae; forewing with basal anal cell, intercostal area blackish, vein M meets Sc+R basal to Sc and distance between M and Rs+M on Sc+R about half as long as vein M (Fig. 3); lancet as in Fig. 31. *dibapha* (Konow)
- Basal 3/4 hindtibia black, apical 1/4 white; tarsi white with apical 2-3 segments black; head black; forewing without basal anal cell, intercostal area yellow as rest of base of wing, vein M meets Sc+R apical to Sc, veins M and Rs+M meet Sc+R at nearly the same point (Fig. 2); lancet as in Fig. 32. *guaca*, new species
31. Hindbasitarsus white (thorax all orange; tibiae black with basal 1/2-1/4 white; face white; lancet similar to that of *poecila*, Fig. 21; male genitalia as in Fig. 60). *guatemalensis* (Dalla Torre) (in part)
- Hindtarsus black. 32
32. Hindtibia white, black only on apical 1/5-1/4; color of thorax variable, yellow with mesosternum usually black, but may be mostly black; lancet as in Fig. 24; male genitalia as in Fig. 59 (wings may be dark in some specimens and hindtibia black in some males). *lepida* (Klug) (in part)
- Hindtibia black; thorax commonly all orange, at most some black on mesonotal lateral lobes; lancet as in Fig. 14; male genitalia as in Fig. 54 *melanocephala* (Lepelletier) (in part)



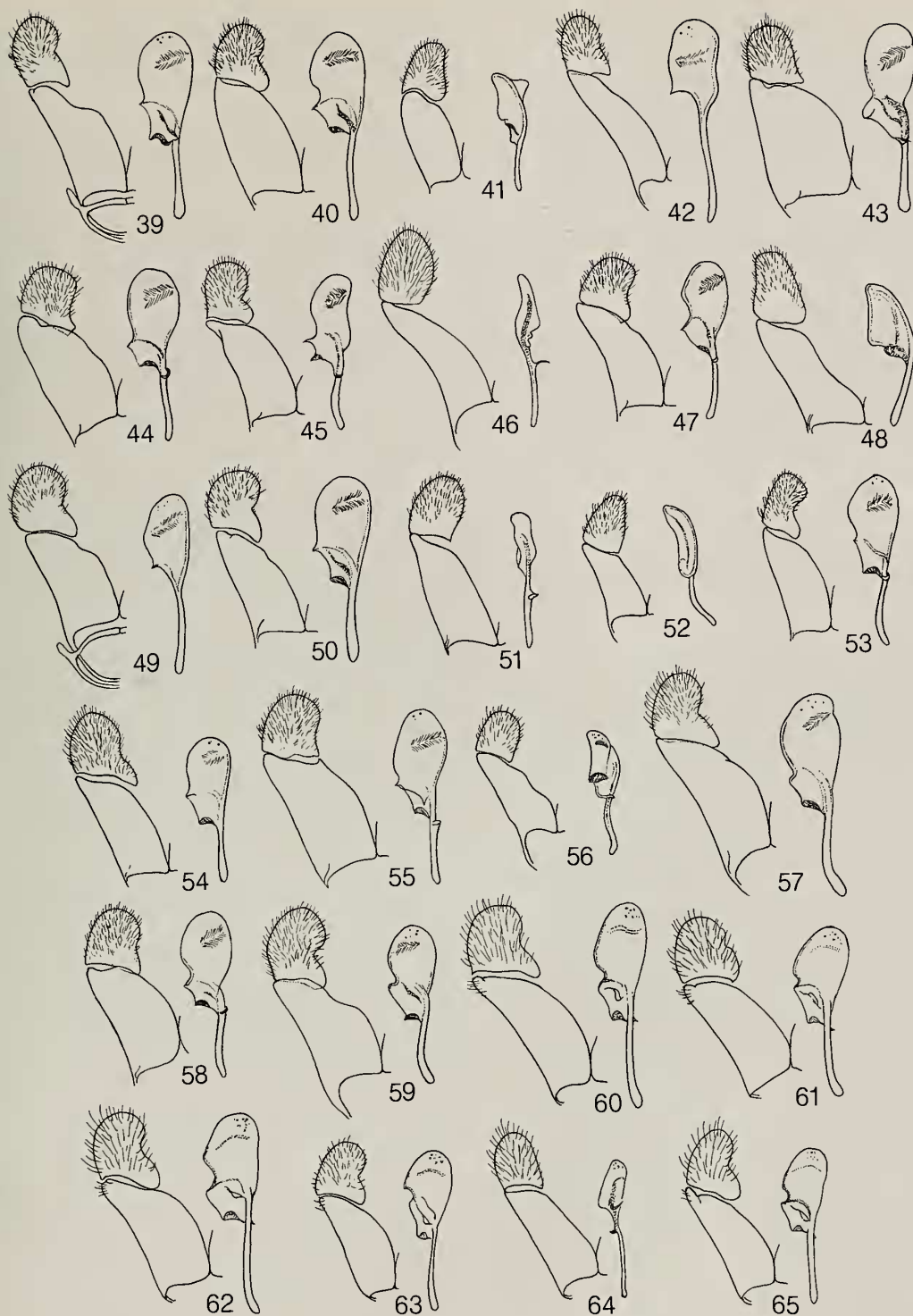
Figs. 14-28. *Scobina*, female lancets. 14, *S. melanocephala*; 15, *S. lurida*; 16, *S. bonplandi*; 17, *S. paradorsalis*; 18, *S. dorsalis*; 19, *S. melanopyga*; 20, *S. torquata*; 21, *S. poecila*; 22, *S. zantara*; 23, *S. notaticollis*; 24, *S. lepida*; 25, *S. tina*; 26, *S. eximia*; 27, *S. brusa*; 28, *S. melanaria*.

33. Hindtibia white or yellow, at least pale on basal 1/3 34
 — Hindtibia black, at most pale at extreme base 44
34. Face around and below antennae white (black on thorax variable, from nearly all yellow to black on mesosternum, mesoprescutum, mesonotal lateral lobes, and tegulae; lancet as in Fig. 24; male genitalia as in Fig. 59) *lepida* (Klug) (in part)
 — Head black 35
35. In forewing, vein M meets Sc+R basal to Sc, distance between M and Rs+M on forewing long, about half length or more of vein M (Fig. 3) 36
 — In forewing, vein M meets Sc+R apical to Sc; veins M and Rs+M meet Sc+R at nearly the same point (Fig. 2) (except *diagonica*, Fig. 4, with distance between M and Rs+M long 37
36. Mesepisternum and mesonotal lateral lobes black; antenna black; lancet as in Fig. 22; male genitalia as in Fig. 41 *zantara*, new species
 — Mesepisternum and mesonotal lateral lobes orange or partly infuscated blackish; antenna with scape and pedicel usually white; lancet as in Fig. 15; male genitalia as in Fig. 52 *lurida* (Klug)
37. Sc of forewing diagonal to Sc+R and subparallel with vein M (Fig. 4) (thorax and hindbasitarsus orange; lancet as in Fig. 38; male genitalia as in Fig. 64) *diagonica*, new species
 — Sc of forewing perpendicular to Sc+R and not parallel with vein M (Fig. 2) 38
38. Pronotum black; mesonotum red with prescutum black (abdomen and tarsi black; lancet as in Fig. 33, male genitalia as in Fig. 63) *emora*, new species (in part)
 — Pronotum orange; mesonotum orange or black with scutellum yellow orange 39
39. Basal anal cell of forewing absent; tarsi orange or with only 4th tarsal segment black 40
 — Basal anal cell of forewing present (Fig. 2); tarsi orange or black 42
40. Mesothorax mostly black with mesoscutellum yellow orange; (abdomen mostly black; lancet as in Fig. 34; male genitalia as in Fig. 44) *xanthospila* (Klug)
 — Thorax orange, cervical sclerites and metathorax may be black 41
41. Abdomen orange with apical 2-3 segments and sheath black; cervical sclerites and metapleuron orange; legs orange with 4th tarsal segments and narrow stripe on inner margins of tibiae black *testacea* (Klug)
 — Abdomen mostly black, whitish lateral and basal spots present, varying in size; cervical sclerites, metapleuron and metanotum except scutellum black; legs orange with hindcoxa, basal half of hindfemur, and apical 3 tarsal segments black (wings blackish but costa and stigma yellow). *maculipes* (Klug)
42. Apices of tibiae and entire tarsi black, bases of basitarsi may be whitish (lancet as in Fig. 20; male genitalia as in Fig. 45) *torquata* (Konow) (in part)
 — Tibiae and tarsi orange, apical tarsal segments may be blackish 43
43. Lancet with annular spines (Fig. 16); 3 stout spines on inner apical margin of scopae of sheath (Fig. 13); lower interocular distance as long or longer than eye length (male genitalia as in Fig. 46) *bonplandi* (Jørgensen)
 — Lancet without annular spines (as in Fig. 14); 2 stout spines on inner apical margin of scopae of sheath; lower interocular distance shorter than eye length. *angusticeps*, new species
44. Face below antennae white (clypeus and labrum white in *nigricollis*) 45
 — Head black. 48
45. Thorax with pleura and sterna orange (coloration variable; wings of female mostly blackish varying to yellowish with apex black; thorax all yellow or various amounts of black on mesonotal lobes; male with wings blackish or somewhat hyaline with blackish apex; lancet as in Fig. 14; male genitalia as in Fig. 54). *melanocephala* (Lepeletier) (in part)
 — Mesosternum and/or mesopleuron black 46
46. Thorax black, lateral angles of pronotum dark orange; abdomen orange with basal plates, anterior margin of 2nd tergum, and apical segment black (basal two antennal segments reddish; clypeus and labrum whitish; basal anal cell present in forewing) *nigricollis* (Konow)
 — Either mesopleuron or mesonotum orange; abdomen orange with apical 2 segments black 47
47. Mesopleuron black with only upper corner of mesepisternum orange; mesonotum orange except black marks on posterior corner of each lateral lobe; only male known. *suda* (Konow)
 — Mesopleuron orange; mesonotum black with scutellum partly orange; only female known. *forficulata* (Konow)



Figs. 29-38. *Scobina*, female lancets. 29, *S. collaris*; 30, *S. fascialis*; 31, *S. dibapha*; 32, *S. guaca*; 33, *S. emora*; 34, *S. xanthospila*; 35, *S. fulcrata*; 36, *S. bolivari*; 37, *S. poeciloides*; 38, *S. diagonica*.

48. Thorax black, lower mesepimeron and metapleuron may be orange but pronotum always black (basal anal cell of forewing absent) **49**
- Thorax usually extensively yellow or orange on mesopleuron or elsewhere, pronotum orange or at least lower 1/2 on sides orange **50**
49. Black, only hindfemur contrastingly orange (sheath stout in dorsal view, with stout spines in inner apical margin, Fig. 13; lancet as in Fig. 35; eyes small)..... *fulcrata* (Klug)
- Coxae, trochanters, and femora orange; abdomen orange ventrally, sometimes basal terga orange *ventris*, new name
50. Mesepisternum and mesosternum black; mesonotum usually mostly black, or black with scutellum orange **51**
- Mesepisternum and/or mesosternum orange; mesonotum with or without black marks **53**
51. Abdomen orange with apical 2 or 3 segments black (thorax with mesepisternum, mesosternum, and mesoprescutum and mesonotal lateral lobes or only mesoprescutum black; lancet as in Fig. 36, male genitalia as in Fig. 42; *scitula* comes here also, but has costa, stigma, and tegula orange) *bolivari* (Konow)
- Abdomen mostly black above and at apex, orange ventrally **52**
52. Wings darkly, uniformly infuscated black (lancet as in Fig. 37; male genitalia as in Fig. 62)..... *poeciloides* (Ashmead) (in part)
- Wings hyaline at base, blackish at apex beyond stigma (only male known; thorax black with ventral part of cervical sclerites, pronotum, mesepimeron, and metapleuron orange yellow; tegula black; abdomen black dorsally and apical 3 sternites black, rest of sterna and terga on lateral margins orange yellow) *basivitrata* Malaise
53. Abdomen black, only basal sterna dark orange; thorax orange, middle of pronotum, small spot on mesoprescutum, and metanotum black (extreme apex of femora tipped with black) *braunsi* (Konow)
- Abdomen orange with apex black or various black markings on dorsum, not solidly black; thorax entirely orange or with black markings **54**
54. At least 2 of the 4 mesonotal lobes all or mostly black; mesosternum usually orange **55**
- Thorax orange or at most a black mark on mesoprescutum or mesosternum partly black **58**
55. Thorax black above; basal anal cell of forewing absent (lower 1/2 pronotum, lower 1/2 cervical sclerites, mesopleuron except black on upper corner and anterior margin, and metapleurae orange; clypeus orange; abdomen orange with basal plates, spots on terga 5 and 6 and terga 7 to apex black; apex of femora black) *nigripennis* (Enderlein)
- Some of the mesonotal lobes orange; basal anal cell of forewing present **56**
56. Mesoprescutum and mesoscutellum black (metascutellum black; abdomen with terga 6 to apex black, sterna orange; sheath slender in dorsal view, as in Fig. 11) *basalis* (Klug)
- Mesonotum with lateral lobes and/or prescutum with black, scutellum orange **57**
57. Mesonotum with lateral lobes and prescutum mostly black; tegula orange; Peru (costa and stigma orange; mesepisternum mostly black but suffused with orange; abdomen orange with apical 2 1/2 segments black; wings somewhat yellowish with apex blackish) *scitula* (Konow)
- Mesonotum with lateral lobes black and prescutum usually orange; tegula usually black; Mexico and Central America (lancet as in Fig. 37; male genitalia as in Fig. 62) *poeciloides* (Ashmead) (in part)
58. Abdomen orange, sheath orange or black, sometimes with few black spots centrally on apical terga (thorax orange or with small black lateral spot on each mesonotal lateral lobe near tegula; extreme bases of tibiae pale; lancet as in Fig. 37; male genitalia as in Fig. 62) *poeciloides* (Ashmead) (in part)
- Abdomen orange with apical 2 or 3 segments or apical 2 or 3 terga black or more extensive black areas on dorsum, sheath usually black **59**
59. Abdomen dorsally with black and orange pattern, either orange with a medial longitudinal black stripe, or black laterally with a medial longitudinal orange stripe **60**
- Abdomen orange with black apex or mostly solidly black above **61**
60. Abdomen orange with a medial longitudinal black stripe, apical 2 or 3 segments black; thorax orange with only metascutellum black *vittata* (Mocsáry)
- Abdomen with terga black laterally and with medial longitudinal orange stripe, apical 2 or 3 segments black; thorax orange with black stripe on each side of mesosternum *bimaculata* (Mocsáry)
61. Wings black, but costa and stigma paler, orange to yellow; basal anal cell of forewing absent **62**
- Wings, including costa and stigma, black; basal anal cell of forewing present (Fig. 2) or absent **63**



Figs. 39-65. *Scobina*, male genitalia. 39, *S. notaticollis*; 40, *S. poecila*; 41, *S. zantara*; 42, *S. bolivari*; 43, *S. rubricollis*; 44, *S. xanthospila*; 45, *S. torquata*; 46, *S. bonplandi*; 47, *S. strophosa*; 48, *S. fascialis*; 49, *S. tina*; 50, *S. inculta*; 51, *S. melanaria*; 52, *S. lurida*; 53, *S. styx*; 54, *S. melanocephala*; 55, *S. melanopyga*; 56, *S. dorsalis*; 57, *S. consobrina*; 58, *S. stigmaticollis*; 59, *S. lepida*; 60, *S. guatemalensis*; 61, *S. paradorsalis*; 62, *S. poeciloides*; 63, *S. emora*; 64, *S. diagonica*; 65, *S. thoracica*. (For most male genitalia, the ventral view of the left half of the genital capsule and the lateral view of the penis valve are shown.)

62. Mesoprescutum black on anterior 3/4; abdomen orange with terga 3 to apex and sterna 4 or 5 to apex black. *notata* (Klug)
- Thorax orange, at most middle of pronotum infuscated; abdomen orange with terga 5 or 6 and segments 7 to apex black (sheath broad, with short, stout spines, as in Fig. 13). *helvola* (Klug)
63. Thorax orange or only mesoprescutum with black mark on anterior 1/2 or less (abdomen of male may be mostly black dorsally; basal anal cell present in forewing; lancet as in Fig. 23; male genitalia as in Fig. 39); Panama to Bolivia. *notaticollis* (Konow)
- Thorax orange; southeastern Brazil to northeastern Argentina. 64
64. Basal anal cell present in forewing (Fig. 2); hindfemur not black at apex; lancet similar to that of *melanocephala*, Fig. 14; male genitalia as in Fig. 65; sheath slender in dorsal view, with small inner apical spines, as in Fig. 11. *thoracica* (Jørgensen)
- Basal anal cell absent in forewing; extreme apex of hindfemur commonly blackish; lancet as in Fig. 19; male genitalia as in Fig. 55; sheath stout in dorsal view, with stout spines on inner apical margin, Fig. 13 (some males with all black abdomen). *melanopyga* (Klug)

SPECIES

***angusticeps* Smith, new species** — Brazil (Espírito Santo)*Scobina angusticeps* Smith.

Female.—Length, 9.0 mm. Antenna with segments 1, 2, and extreme base of 3 orange, rest of 3rd black. Head black; maxilla and labium yellow orange. Thorax with pronotum yellow orange and with most of mesepisternum, mesosternum, mesonotum, and metanotum black except yellowish as follows: narrow line on meson of mesosternum, narrow line separating mesosternum and mesepisternum, margins of mesepisternum, margins of mesoprescutum forming a V-shaped mark, mesoscutellum, and metascutellum. Abdomen black, suffused with yellow orange which is more extensive on basal 3 or 4 sterna and meson of basal terga, especially central half of basal plates; sheath black. Legs yellow orange; hindcoxa with black spot at base; extreme apex of hindtibia with black ring; 2nd tarsal segments black at apices; all of apical 3 tarsal segments black. Wings uniformly moderately infuscated black; veins black, costa and stigma yellowish. Antennal length to head width as 11.5:6.2. Eyes large, lower interocular distance slightly less than eye length, as 3.4:3.6. Distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:0.8:0.7; malar space equal to diameter of front ocellus. Mostly shining with supraclypeal area next to eye roughened and irregularly rugose. Length of hindbasitarsus longer than length of remaining tarsal segments combined, as 3.6:3.4. Forewing with basal anal cell. Sheath from above with scopae slender; two stout spines on inner apical margin (similar to Fig. 13

but with 2 spines). Lancet (similar to *melanocephala*, Fig. 14) rounded at apex, without lateral armature, annuli curved.

Male.—Unknown.

Holotype.—E, "Brasil: Espírito Sto., Sta. Thereza, 2.VI.1928, 5 km NO, Leg.: O. Conde." (Eberswalde).

Remarks.—This species is very similar to both *bonplandi* and *xanthospila*. From *bonplandi* it is separated by the lack of annular spines on the lancet, presence of only two stout spines on the inner apical margin of the scopae of the sheath instead of three, the lower interocular distance less than the eye length instead of greater, and the distance between the hindocelli and the posterior margin of the head which is less than the distance from the eye to the hindocellus instead of equal. In addition, *bonplandi* has a broader orange stripe on the abdomen, though both are similar in color. *Scobina xanthospila* has several very small teeth on the apical inner margin of the scopae of the sheath and lacks the basal anal cell in the forewing.

***basalis* (Klug), new combination** — Surinam

**Hylotoma basalis* Klug 1834: 237. F. "Surinam" (Berlin, F).—Kriechbaumer 1884: 287.—Norton 1867: 72.—Dalla Torre 1894: 326.

Labidarge basalis: Konow 1899a: 310.—Konow 1905a: 16.—Konow 1907a: 260, 262.

I have not seen specimens other than the holotype. The coloration is as follows: antenna and head black; thorax orange with center of pronotum, mesoprescutum, mesoscutellum, and metascutellum black; abdomen orange with 5th terga blackish infuscate, terga 6 to apex black, all sterna orange; legs orange with mid- and

hindtibiae and all tarsi black; wings uniformly, lightly black infuscated, veins and stigma black. Sheath slender, as in Fig. 11.

basivitrata Malaise — Argentina (Chaco); Paraguay

**Scobina basivitrata* Malaise 1949: 1-2. M. "Paraguay (Villarica); Argentinian Chaco (Resistencia)" (Stockholm, M).

The male from Paraguay is labeled "typus." It is the only specimen I examined and is possibly the male of another species, but I have not been able to make associations. According to Malaise, it is separated mainly by the wings which are clear in the basal half with the apex brownish infuscated, otherwise it is similar to *bolivari* in color. The coloration is as follows: antenna and head black; thorax including tegula black with lower part of cervical sclerites, pronotum, mesepimeron, and metapleuron orange yellow; abdomen black dorsally, ventrally orange yellow with apical 3 sterna black; mid- and hindlegs yellow with tibiae and tarsi black; wings hyaline at base, little blacker toward apices; veins and stigma dark brown. This could be the male of *thoracica*.

bimaculata (Mocsáry), **new combination** — Brazil (Bahia)

**Labidarge bimaculata* Mocsáry 1909: 3-4. F. "Brasilia: Bahia" (Budapest, F).

I have not seen specimens comparable to this species. It could be a color variation of another species. The coloration is as follows: orange with head, two marks on mesosternum, apex of foretarsus, and mid- and hindtibiae and tarsi black; abdomen orange with transverse black bands on side and apex of dorsum, central longitudinal orange line to about 6th tergum; wings blackish infuscated.

bipartita (Cameron), **new combination** — Panama

**Hylotoma bipartita* Cameron 1883: 40-41. F. "Panama, Bugaba" (London, F).— Dalla Torre 1894: 327.

Arge bipartita: Konow 1905a: 18.

Labidarge bipartita: Konow 1907a: 259, 266.

I have seen only the holotype, BM# 1.116. The sheath has stout spines on the apical inner margin.

bolivari (Konow), **new combination** — Argentina (Jujuy); Bolivia; Colombia; Ecuador; Peru

**Labidarge bolivari* Konow 1899a: 310. F, M. "Bolivia (Yungas), Peru (Callanga, Cuczo)" (Eberswalde, F).— Konow 1905a: 16.— Konow 1907a: 260, 271-272.— Oehlke and Wudowenz 1984: 370 (4 M, 1 F syntypes at Eberswalde)

At Eberswalde, there are 1 F and 2 M from Yungas, Bolivia, and 1 M from Callanga, Cuczo, Peru, labeled "typus." The female from Bolivia is hereby designated lectotype; the 3 M are paralectotypes. A female at Madrid from Peru labeled "554" and with Konow's determination label may be part of the type series. I have seen a number of specimens from each of the above countries.

bonplandi (Jörgensen), **new combination** — Argentina (Misiones); Brazil (Santa Catarina, São Paulo)

**Labidarge bonplandi* Jörgensen 1913 (Oct.): 259-260. M. "Monte de Bonpland" (La Plata, M).

Caloptilia missionum* Schrottky 1913 (Nov.): 703-704. F, M. "Bompland" (La Plata, F). **New synonymy.

Stelidarge missionum: Forsius 1925a: 20.

Schrottky described *missionum* from both sexes, and Jörgensen described *bonplandi* from a male. Jörgensen must have described his species from the same male Schrottky used for his species since the male bears the same date as both authors stated: "20-IX-10 Misiones, Bompland, Jörgensen." The lectotype of *missionum*, here designated, is a female labeled "Argentina Bonpland, 22-IX-1909, P. Jörgensen", "Caloptilia missionum Schrottky, C. Schrottky det 1912," "Col. P. Jörgensen." The lancet is unusual for *Scobina* in that stout annular spines are present (Fig. 16) and the sheath (Fig. 13) has very stout spines on the inner apical margin. This is shared by only a few other species of the genus. I have seen a number of specimens from each of the above localities.

braunsi (Konow), **new combination** — Brazil (São Paulo)

**Labidarge Braunsi* Konow 1899a: 311-312. F. "Brasilia (Santos)" (Eberswalde, F).— Konow 1901: 57-58 (M).— Konow 1905a: 16.— Konow 1907a: 262, 422.— Oehlke and Wudowenz 1984: 370 (holotype).

This could be a color variation of another species, but I have not seen enough specimens to evaluate this possibility. The coloration is as follows: head black; thorax orange with metanotum, center of pronotum, and spot on mesoprescutum black; abdomen black with basal sterna dark orange and terga 2 and 3 with barely visible dark orange paired spots; legs orange with tibiae and tarsi black, apices of femora tipped with black; wings uniformly blackish infuscated.

brusa Smith, new species — Mexico (Colima, Jalisco)

Scobina brusa Smith

Female.— Length, 9.5 mm. Black with whitish pubescence covering head, thorax, and abdomen. Legs black with extreme bases of fore- and midfemora, apical 1/3 forefemur, basal 1/3 hindfemur, and basal 3/4 of tibiae white. Wings hyaline with blackish spot below anterior half of stigma; veins and stigma black. Antennal length to head width as 11.0:6.0; lower interocular distance to eye length as 3.5:3.1; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.9:0.9:1.0. Forewing with basal anal cell; vein M meets Sc+R basal to Sc and distance between M and Rs+M on Sc+R more than half length of vein M (as in Fig. 3). Length of hindbasitarsus to length of remaining tarsal segments combined as 3.5:3.5. Scopae of sheath stout, with 3 stout spines in inner apical margin (as in Fig. 13). Lancet as in Fig. 27, with long stout spines on annuli.

Male.— Unknown.

Holotype.— E, "Mexico, Colima, 21 mi. NW Manzanillo, VIII-25-1970, Malaise trap 10a-3p, MS&JS Wasbauer" (San Francisco)

Paratype.— MEXICO: Jalisco, La Floresta, Lago de Chapala, 1510 m, IX-4 to 5-1977, E. I. Schlinger (1 E). (Berkeley).

Remarks.— This species is very similar to *eximia*, but *eximia* has the apex of the forewing black, the basal two tarsal segments whitish, and much shorter spines on the annuli of the lancet (Fig. 26).

carbonaria (Klug), new combination — Brazil (Rio de Janeiro, São Paulo)

**Hylotoma carbonaria* Klug 1834: 240. E. "Brasilien" (Berlin, E).— Norton 1867: 72.— Kriechbaumer 1884: 289.— Dalla Torre 1894: 329.

Labidarge carbonaria: Konow 1905a: 16.— Konow 1907a: 263, 426.

Stelidarge carbonaria: Malaise 1949: 2, fig. 1K (sheath; compared with *styx*).

Two female syntypes are at Berlin; the lectotype by present designation is labeled "13681," "St. Paul, Sello S.," "Typus," "*carbonaria* Kl., St. Paul, Sell." The other specimen, a paralectotype, has the same data but lacks a determination label. This species is entirely black; the scopae of the sheath are stout, as in Fig. 12, and the basal anal cell of the forewing is absent.

collaris (Klug), new combination — Brazil

**Hylotoma collaris* Klug 1834: 236. E. "Brasilien" (Berlin, E).— Norton 1867: 72.— Kriechbaumer 1884: 287.— Dalla Torre 1894: 330.

Labidarge collaris: Konow 1899a: 312.— Konow 1905a: 16.— Konow 1907a: 263, 425.

I have seen only one other specimen besides the holotype, and that is labeled "Brasil." The coloration is as follows: antenna and head black; thorax orange with cervical sclerites, mesosternum, and metapleuron black; abdomen and sheath black; legs black. The basal anal cell of the forewing is present, and the sheath has three stout spines (as in Fig. 13). The supraclypeal area near the eyes is dull and punctate.

consobrina (Norton) — Costa Rica; Guatemala; Mexico (Chiapas, Colima, Nayarit, Oaxaca, Sinaloa, Veracruz); Nicaragua; El Salvador

**Hylotoma consobrina* Norton 1872: 78. E. "Mexico" (Philadelphia, E).— Cresson 1880: 36.— Cameron 1883: 39.— Dalla Torre 1894: 330.— Cresson 1928: 5 (holotype).

Arge consobrina: Konow 1905a: 18.

Labidarge consobrina: Konow 1906c: 387.— Konow 1907a: 259, 270 (syn.: *fasciatiennis* Cameron).

Scobina consobrina: Smith 1971a: 526 (holotype).

**Hylotoma fasciatiennis* Cameron 1883: 41. E. "Guatemala, Capetillo" (London, E).— Dalla Torre 1894: 334.

Arge fasciatiennis: Konow 1905a: 19.— Konow 1906c: 387.

Host: *Sida* sp. (Malvaceae) (reared by J.-M. Maes, Leon, Nicaragua).

The holotype of *fasciatiennis* is BM# 1.63. This species is recognized by the yellow head and the forewing pattern which is yellow at the center and black and the base and apex. I have not seen color variations with blackish heads. I have seen many specimens from the above localities.

diagonica Smith, new species — Brazil (Santa Catarina)*Scobina diagonica* Smith.

Female.—Length, 9.5–10.0 mm. Antenna and head black; mandible brownish; palpi orange. Thorax orange. Abdomen orange, terga and sterna darker orange to blackish from 3 to apex, light on 3rd becoming darker to black on apical 2 or 3 segments but with orange lateral stripe; sheath black or with orange stripe laterally. Legs orange with apical 4 tarsal segments black; hindtibia darker orange than rest of legs. Wings uniformly dark yellowish; veins brown, costa and stigma orange yellow. Antennal length to head width as 13.3:6.2; lower interocular distance to eye length as 3.6:3.4, eyes large and not converging below; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.9:0.8:0.7. Forewing with basal anal cell; vein M meets Sc+R apical to Sc, distance between M and Rs+M on Sc+R about 2/3 length of vein M; Sc diagonal, subparallel with vein M, not perpendicular to Sc+R (Fig. 4). Length of hindbasitarsus to length of remaining tarsal segments combined as 4.1:4.0. Scopae of sheath slender, with 2 stout spines on inner apical margin. Lancet as in Fig. 38.

Male.—Length, 9.0–9.5 mm. Coloration and structure similar to those of female; abdominal terga 4 or 5 to apex sometimes darker black. Genitalia as in Fig. 64.

Holotype.—E, “Brazil: Nova Teutonia, 27°11' B, 52°23' L, 17.II.1938, Fritz Plaumann, B.M. 1938-458” (London).

Paratypes.—BRAZIL: Same locality as holotype except dates, 16.II.1938 (1 E), 11.II.1938 (1 E), 21.I.1938 (1 E), 15.II.1938 (1 E), 23.XII.1937 (1 E), 3.II.1938 (1 E), 18.II.1938 (1 M), 29.I.1937 (1 M), 29.IX.1938 (1 M), XII-1935 (2 M). (London, Washington).

Remarks.—The diagonal intercostal crossvein is diagnostic for this species. In all other species of *Scobina* I have examined, this crossvein is perpendicular to Sc+R. Also, even though M meets Sc+R apical to Sc in the forewing, the distance between Rs+M and M on Sc+R is relatively long, equal to two-thirds or more the length of vein M. Another diagnostic feature is the unusually high, sharp carinae of the head. This is difficult to describe and figure, but they are decidedly higher and more carinate than most other species I have seen. The orange thorax, base of the abdomen, and legs, and genitalia will also help separate this species from other *Scobina*.

dibapha (Konow), new combination — Colombia; Peru

**Labidarge dibapha* Konow 1899a: 311. E. “Peru (Callanga, Cuzco)” (Eberswalde, E).—Konow 1905a: 16.—MacGillivray 1906: pl. 38, fig. 78 (wings).—Konow 1907a: 419–420.—Oehlke and Wudowenz 1984: 377 (holotype).

This species is characterized in the key. I have seen one specimen from Colombia (Leticia, Amazonas).

dorsalis (Klug), new combination — Costa Rica; Guatemala; Mexico (Chiapas, Colima, Guerrero, Jalisco, Mexico, Michoacán, Morelos, Nayarit, Oaxaca, Sinaloa, Veracruz); El Salvador

**Hylotoma dorsalis* Klug 1834: 237. E. “Mexiko” (Berlin, E).—Norton 1867: 64, 67.—Norton 1872: 78 (E, M); similar to N. Amer. [*Arge*] *scapularis*).—Kirby 1882: 69 (“Oajaca”).—Cameron 1883: 36–37 (Guatemala).—Kriechbaumer 1884: 287.—Dalla Torre 1894: 332.

Labidarge dorsalis: Konow 1905a: 16.—Konow 1907a: 258, 263.

This is one of two black species with red on the thorax from Mexico and Central America, the other being *paradorsalis*. It is relatively common in Mexico and Central America. See *paradorsalis* for diagnostic characters.

emora Smith, new species — Argentina (Jujuy, Salta, Tucumán)*Scobina emora* Smith.

Female.—Length, 7.5 mm. Antenna and head black; palpi brownish. Thorax black with pronotum laterally, mesoprescutum, mesoscutellum, upper 1/2 of mesepimeron, and metapleuron red, or all black with only pronotum and mesonotum red usually with some blackish marks on mesoprescutum and/or scutellum. Abdomen black. Legs with coxae, trochanters, and fore- and midfemora white, hindfemur black on inner surface and white on outer surface, tibiae and tarsi black, sometimes with legs mostly black. Wings uniformly, darkly black infuscated; veins and stigma black. Antennal length to head width as 10.2:4.7; lower interocular distance to eye length as 2.7:2.2; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.6:0.6. Forewing with basal anal cell (absent in a few specimens); vein M

meets Sc+R apical to Sc and veins M and Rs+M meet Sc+R at about the same point. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.5:2.5. Scopae of sheath slender, with short small spines on inner apical margin (as in Fig. 11). Lancet as in Fig. 33.

Male.—Length, 5.8-7.2 mm. Coloration and structure similar to that of female except upper 1/3 of mesepisternum may be red, upper 1/2 of mesepimeron may be red, anterior 1/2 of mesoscutellum usually red, tegulae red or black and legs whitish with only apical 1/5 of tibiae and entire tarsi black. Genitalia as in Fig. 63.

Holotype.—E, "Argentina, Horco Molle, Tuc., Apr. 3-10, 1966, L. A. Stange" (Tucumán).

Paratypes.—ARGENTINA: Same data as holotype except date, Mar. 7-13, 1966 (1 M); Salta, Campo Quijano, XII-81, M. Fritz (2 E, 6 M); Salta, Rosario de Lerma, XII-1982, M. A. Fritz (1 E); Jujuy, Posta Lozano, III-21-23-69, C.C. Porter (4 M), X-27-XI-2-68 (4 M), III-28-31-69 (5 M), 8-XII-69 (1 M), X-29-XI-4-68 (1 M), 15-17 Dec. 1967 (2 M), 28 Nov.-Dec. 1967, C. Porter, E. Willink (1 M); Jujuy, Alto la Vina, Mar. 13-20, '66, C. C. Porter (4 M); S. Pedro Colalao, Tucumán, XII-15/19-64, C.C. Porter (1 M); Tucumán, Trancas, Tacunas, XI-12-68, C.C. Porter (1 M), 1-30.XI.1969, L. Stange (1 M); Tucumán, Tafi-Lacavera, 28.XI.1951, R. Golbach (1 M); Jujuy, Camino a Cornisa, 11-III-1965, A. Willink (1 M). (Tucumán, Cambridge, Washington, Fritz Coll.).

Remarks.—The coloration of the legs differs between sexes. In the only females examined the legs are nearly all black or the tibiae and tarsi and the inner surface of the hindfemur are black, whereas in the male the legs are white except for the extreme apices of the tibiae and the tarsi which are black. Also, the pronotum is mostly red in the female, but black in the male. The white on the legs, red pattern of the thorax, and lancet and male genitalia distinguish this species from others.

eximia (Kirby) — Mexico (Veracruz)

**Hylotoma eximia* Kirby 1882: 65, pl. 5, fig. 11. E. "Mexico. Orizaba" (London, E).—Cameron 1883: 36.—Dalla Torre 1894: 333.

Arge eximia: Konow 1905a: 19.—Konow 1906c: 387.—Konow 1907a: 489.—Konow 1908b: 185.

Scobina eximia: Smith 1989b: 198.

I have seen only the holotype (BM# 1.114). This species is discussed under *brusa*.

fascialis (Norton) — Mexico (Chiapas, Morelos, Nayarit, Tabasco, Veracruz)

**Hylotoma fascialis* Norton 1867: 64, 69. M. "Mexico" (Genève, M).—Cameron 1883: 38-39.—Dalla Torre 1894: 334.

Arge fascialis: Konow 1905a: 19.

Labidarge fascialis: Konow 1907a: 260, 270.

Scobina fascialis: Smith 1971a: 526 (holotype).

I have seen a number of specimens from the above Mexican states. The female is similar in coloration to the male, and both run to the same couplet in the key to species.

forficulata (Konow), **new combination** — Peru

**Labidarge forficulata* Konow 1906b: 178. E. "Peru (Chanchamayo)" (Eberswalde, E).—Konow 1907a: 262, 422.—Oehlke and Wudowenz 1984: 381 (holotype)

I have seen very few examples of this species, and those also from Peru. The coloration is as follows: head black with face below antenna white; thorax orange with mesonotum (except most of scutellum) and mesosternum black; abdomen orange with apical 2 segments and sheath black; legs orange with mid- and hindtibiae and tarsi black, basal 1/4 hindtibia paler; wings hyaline, slightly blackish at apices.

fulcrata (Klug), **new combination** — Brazil (Rio de Janeiro, São Paulo)

**Hylotoma fulcrata* Klug 1834: 240. M. "Brasilien" (Berlin, M).—Norton 1867: 72.—Kirby 1882: 78 (Petropolis).—Kriechbaumer 1884: 289.—Dalla Torre 1894: 334.

Labidarge fulcrata: Konow 1905a: 16.

Stelidarge fulcrata: Konow 1907a: 192, 257.—Forsius 1925a: 20.

The holotype is labeled "St. Paul, Sello S." I have seen specimens from both of the above Brazilian states.

geniculata (Klug), **new combination** — Brazil (São Paulo)

**Hylotoma geniculata* Klug 1834: 237. E, M. "Brasilien" (Berlin, M).—Norton 1867: 72.—Kriechbaumer 1884: 287.—Dalla Torre 1894: 335.

Labidarge geniculata: Konow 1901: 58.—Konow 1905a: 16.—Konow 1907a: 262, 424.

A male and a female, both labeled types, are at Berlin; both are labeled "St. Paul, Sello S." The male has Klug's determination label and is hereby designated lectotype; the female is a paralectotype. The coloration is as follows: antenna and head black; thorax red with anterior edge of pronotum, cervical sclerites, metapleuron, and metanotum (except scutellum) black; abdomen black; legs black with extreme apices of femora orange to whitish; wings uniformly blackish infuscated.

guaca Smith, new species — Brazil (Minas Gerais)

Scobina guaca Smith.

Length, 11.5 mm. Scape, pedicel (flagellum missing) and head black; clypeus and mandible brownish, palpi orange. Thorax orange. Abdomen orange with segments 7 to apex and sheath black. Legs orange to white with basal 3/4 hindtibia black and apical 4 midtarsal segments and apical 2 hindtarsal segments black (foretarsus missing). Wings bright yellow with apex beyond stigma black; stigma and veins yellow in yellow area, black in black apical portion. Lower interocular distance to eye length as 3.5:3.4; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:0.7:1.0. Forewing without basal anal cell; vein M meets Sc+R apical to Sc, distance between Rs+M and M on Sc+R about 1/3 length of vein M. Length of hindbasitarsus to length of remaining tarsal segments combined as 4.5:4.3. Scopae of sheath stout, with 3 stout spines on inner apical margin (Fig. 13). Lancet as in Fig. 32; annuli 4-13 or 14 with stout spines.

Male.— Unknown.

Holotype.— E, "Minas Geraes, Cabo Vesda, Diaz off., anno 1920" (São Paulo). "Cabo Vesda" and "Diaz off." are handwritten on the label, and I am not certain of the spelling.

Remarks.— The bright coloration, stout spines of the scopae of the sheath, and annular spines on the lancet are diagnostic for this species.

guatemalensis (Dalla Torre), new combination —

Costa Rica; Guatemala; Honduras; Mexico (Chiapas, Guerro, Michoacán, Morelos, Oaxaca, Puebla, San Luis Potosi, Tabasco, Veracruz, Yucatán); Nicaragua; Panama

**Hylotoma annulipes* Cameron 1883: 40, pl. 1, fig. 2. E, M. "Guatemala, San Geronimo; Panama" (London, E) (preoccupied by *Hylotoma annulipes* Klug 1834).

Labidarge annulipes: Konow 1906b: 177.— Konow 1907a: 259, 266-267.

**Hylotoma semifuscus* Norton 1867: 64, 69-70. M. "Mexico" (Genève, M).— Cameron 1883: 39-40, pl. 1, fig. 11.— Dalla Torre 1894: 343. New synonymy.

Arge semifusca: Konow 1905a: 21.

Labidarge semifusca: Konow 1907a: 259, 269.

Scobina semifusca: Smith 1971a: 526 (holotype).

Hylotoma guatemalensis Dalla Torre 1894: 335 (new name for *H. annulipes* Cameron).

Arge guatemalensis: Konow 1905a: 19.

**Labidarge nimbata* Konow 1907c: 221. E. "Mexico" (Madrid, E).— Konow 1907a: 259, 268. New synonymy.

**Labidarge pictipes* Konow 1906b: 177. E. "Guatemala (Retalhulen)" (Eberswalde, E).— Konow 1907a: 259, 267-268.— Oehlke and Wudowenz 1984: 404 (holotype). New synonymy.

**Stelidarge bicoloripes* Enderlein 1919: 114. "F"=M. "Guatemala" (Warszawa, M). New synonymy.

Host: *Sida* sp. (Malvaceae); reared specimen from Puente Teterete, Veracruz, Mexico, 4-VIII-89.

A female of *nimbata* at Madrid labeled "México, L. Conradt, 1903, Lab. ent. Escalera" and with Konow's determination label is hereby designated the lectotype. The type of *pictipes* has "Retalulen" on the label, a discrepancy in spelling from the original description. The lectotype of *annulipes*, here designated, is the female set aside as BM# 1.66, labeled "Hylotoma annulipes Cm., San Geronimo 3000 ft., "San Geronimo, Vera Paz, Champion." Color variation in this species includes the black to yellow head, hindcoxa, and hindfemur as well as the mesosternum and mesonotum which may be yellow or have blackish stripes. I have seen many specimens from Mexico to Panama.

helvola (Klug), new combination — Brazil

**Hylotoma helvola* Klug 1834: 238. E. "Brasilien" (Berlin, E).— Norton 1867: 72.— Kriechbaumer 1884: 288.— Dalla Torre 1894: 335.

Labidarge helvola: Konow 1899a: 310.— Konow 1905a: 16.— Konow 1907a: 261, 418.

I have seen only several specimens, those other than the holotype labeled only "Brasil." The coloration is as follows: antenna and head black; thorax orange with middle of pronotum blackish; abdomen orange with terga 5-6 and segments 7 to apex black; legs orange with mid- and hindtibiae and tarsi black; wings blackish with costa and stigma yellow to orange. The forewing lacks a basal anal cell, and the sheath has three stout spines, as in Fig. 13.

inculta (Konow), **new combination** — Argentina (Jujuy); Bolivia; Ecuador; Peru; Venezuela

**Labidarge inculta* Konow 1906b: 180. M. "Peru (Marcapata), Bolivia (Yungas, Mapiri)" (Eberswalde, M).— Konow 1907a: 263, 425-426.— Oehlke and Wudowenz 1984: 388 (5 M syntypes at Eberswalde).

Five males from "Marcapata, Peru" labeled "typus" are at Eberswalde. The one with Konow's determination label is selected the lectotype, the other four are paralectotypes. I did not see specimens from the Bolivia localities, but this is a relatively common species in the Andes from Venezuela to northern Argentina.

infuscata (Klug), **new combination** — Brazil (São Paulo)

**Hylotoma infuscata* Klug 1834: 236. M. "Brasilien" (Berlin, M).— Norton 1867: 72.— Kriechbaumer 1884: 287.— Dalla Torre 1894: 335.

Labidarge infuscata: Konow 1899a: 312.— Konow 1905a: 16.— Konow 1907a: 262, 423.

Two males are at Berlin. The lectotype, hereby designated, is labeled "13660," "Brasil. v. Olfers.," "Typus," and "infuscata Kl., Bras., v. Olf." The other male is a paralectotype and has the same labels but lacks the determination label. I have seen several females from São Paulo (Horto Florestal, São Paulo), and they are similar in coloration to the male: antenna and head black; thorax red with middle of pronotum, spot on mesoprescutum, and mesosternum black; abdomen black; fore- and midlegs black with femora dark orange, hindleg black with extreme apex of femur paler; wings darkly, uniformly black infuscated.

lepida (Klug), **new combination** — Costa Rica; El Salvador; Guatemala; Honduras; Mexico (Chiapas, Oaxaca, Veracruz); Nicaragua; Panama

**Hylotoma lepida* Klug 1834: 239. M. "Mexiko" (Berlin, M).— Norton 1867: 64, 71.— Norton 1872: 78.— Cameron 1883: 39.— Kriechbaumer 1884: 288.— Dalla Torre 1894: 336.

Labidarge lepida: Konow 1905a: 16.— Konow 1907a: 259, 268.

Hylotoma bivittata* Cameron 1883: 37, pl. 2, fig. 14. E, M. "Panama, Volcan de Chiriqui, 2000 to 3000 feet" (London, E).— Dalla Torre 1894: 327. **New synonymy.

Arge bivittata: Konow 1905a: 18.

Labidarge bivittata: Konow 1907a: 265-266 (M another species?).

Hylotoma testacea* Cameron 1883: 37-38. E. "Costa Rica" (London, E) (Preoccupied by *Hylotoma testacea* Klug 1834). **New synonymy.

Arge testacea: Konow 1905a: 21.

Hylotoma nigriceps* Cameron 1883: 39, pl. 4, fig. 1. E, M. "Nicaragua, Chongales" (London, ?).— Dalla Torre 1894: 337 (*nigriceps*!). **New synonymy.

Arge nigriceps: Konow 1905a: 19.

Labidarge nigriceps: Konow 1907a: 259, 269 (syn.: *adusta* Konow).

Caloptilia nigriceps: Rohwer 1912a: 1.

Hylotoma albitibialis* Cameron 1883: 41. E. "Guatemala, Zapote" (London, E).— Dalla Torre 1894: 325. **New synonymy.

Arge albitibialis: Konow 1905a: 17.

Labidarge albitibialis: Konow 1907a: 259, 267.

Hylotoma cameronii Dalla Torre 1894: 328 (new name for *Hylotoma testacea* Cameron; *H. cameronii* Dalla Torre is preoccupied in *Scobina* by *Hemidianeura cameroni* Kirby 1886 [see *melanopyga*]).

Labidarge cameroni: Konow 1907a: 259, 269.

Labidarge adusta Konow 1904: 234. E. "Costa Rica" (not located).— Konow 1905: 16. **New synonymy.**

Labidarge fucosa* Konow 1904: 234. E. "Costa Rica (San Carlos)" (Eberswalde, E).— Konow 1905a: 16.— Konow 1907a: 258, 265.— Oehlke and Wudowenz 1984: (2 E syntypes at Eberswalde). **New synonymy.

Labidarge parca* Konow 1904: 234-235. E. "Costa Rica" (Eberswalde, E).— Konow 1905a: 17.— Konow 1907a: 258, 264.— Oehlke and Wudowenz 1984: 402 (holotype). **New synonymy.

Labidarge immunda* Konow 1904: 235. E. "Costa Rica" (Eberswalde, E).— Konow 1905a: 16.— Konow 1907a: 258, 263-264.— Oehlke and Wudowenz 1984: 388 (2 E syntypes at Eberswalde). **New synonymy.

Caloptilia immunda: Rohwer 1911b: 383.

The holotype of *lepida* is labeled "Jalappa." Two females of *immunda* Konow each labeled "typus" are at Eberswalde. The female labeled "Costa Rica, Am. m.," and with Konow's determination label is hereby selected lectotype. The other female labeled "Costa Rica, San Jose, 1903, Burgdorf" is a paralectotype. Two females or *fucosa* are at Eberswalde, both labeled "typus." A female labeled "Costa Rica, Am. m." and with Konow's determination label is the lectotype, and the other female labeled "Costa Rica, San Carlos" is a paralectotype. The holotype of *albitibialis* is BM# 1.73; of *nigriceps*, BM# 1.39; and of *testacea*, BM# 1.61. The specimen labeled as type of *nigriceps* has the apex of

the abdomen broken; thus, the sex is unknown. The lectotype of *bivittata*, here designated, is the female set aside as BM #1.65, labeled "Hylotoma bivittata Cam., Type, B.C.A. i.37," "V. de Chiriqui, 2-3000 ft."

The head varies in color from mostly yellow above, yellow with a black transverse band, to mostly black. After studying series of specimens, especially from Costa Rica, I am convinced that this is a very color variable species encompassing the numerous forms described above. Structurally similar adults show a wide range of color, and comparing the extreme light and dark forms, it is hard to believe they are the same. Nonetheless, there are so many intermediates that it is impossible to separate them. The palest forms are represented by *lepida*, *albitibialis*, and *nigriceps*, all with an orange head and brightly bicolored wings and blackish hindfemur and blackish mesosternum in the latter two. *Hylotoma testacea* is similar to these but with the head black above. Those described as *immunda*, *fucosa*, *parca*, and *bivittata* have wings appearing uniformly dark but the base is sometimes paler than the apex and the costa and stigma are yellowish. *Hylotoma bivittata* has an orange thorax (including the mesosternum) but the mesonotal lateral lobes and tegula are black; *fucosa* and *parca* have the mesosternum and mesoprescutum black. That described as *immunda* is the extreme dark form with the thorax mostly black except for the yellow-orange pronotum, mesepisternum, mesoscutellum, and metanotum, the abdomen is black above and at its apex, and the wings are lightly yellowish with the apex faintly darker. The male of *lepida* is usually darker and some have the supraclypeal area blackish (though not as black as the rest of the head), most of the hindtibia blackish, and sometimes uniformly blackish wings.

***lurida* (Klug), new combination** — Bolivia; Brazil (Ceará, Pará); Colombia; Ecuador; Peru; Surinam

**Hylotoma lurida* Klug 1834: 238. F. "Surinam" (Berlin, F.)— Norton 1867: 72.— Kriechbaumer 1884: 288.— Dalla Torre 1894: 336.

Labidarge lurida: Konow 1904: 232.— Konow 1905a: 16.— Konow 1907a: 260, 417.

Labidarge valga* Konow 1904: 236. M. "Brasilia (Para)" (Eberswalde, M.)— Konow 1905a: 17.— Konow 1907a: 260, 272, 417.— Oehlke and Wudowenz 1984: 418 (holotype). **New synonymy.

Konow's *valga* must be the male of *lurida* according to associated specimens I have seen; the male differs slightly from the female by having the extreme apex of

each femur black and more than the apical half of the hindtibia black. I have seen specimens from all of the above localities.

***maculipes* (Klug), new combination** — Brazil (Minas Gerais, São Paulo)

**Hylotoma maculipes* Klug 1834: 238-239. F. "Brasilien" (Berlin, F.)— Norton 1867: 72.— Kriechbaumer 1884: 336.— Dalla Torre 1894: 336.

Labidarge maculipes: Konow 1905a: 16.— Konow 1907a: 262, 423.

Two females were sent to me from Berlin, both labeled "13678," "Brasilien, Sello S.," "Typus." The specimen with the large green determination label is hereby designated lectotype, the other a paralectotype. I have seen one specimen from Barginha, M. Gerais.

***melanaria* (Klug), new combination** — Brazil (Minas Gerais, Rio de Janeiro, São Paulo)

**Hylotoma melanaria* Klug 1834: 240-241. F. "Brasilien" (Berlin, F.)— Norton 1867: 73.— Kriechbaumer 1884: 289.— Dalla Torre 1894: 336.

Labidarge melanaria: Konow 1905a: 16.— Konow 1907a: 263, 426.

I have seen specimens from each of the above Brazilian states.

***melanocephala* (Lepeletier)** — Argentina (Salta); Bolivia; Brazil (Mato Grosso do Sul, Minas Geraes, Pará); Colombia; Ecuador; French Guiana; Guyana; Peru; Surinam; Venezuela

**Hylotoma melanocephala* Lepeletier 1823: 48. F. "Patria ignota" (Paris, F.)

Hylotoma (Scobina) melanocephala: Lepeletier and Serville 1828: 574 (F., M. from Cayenne).

Scobina melanocephala: Kirby 1882: 41 (Amazons).— Dalla Torre 1894: 317.— Konow 1905a: 15.— Konow 1907a: 190.— Malaise 1937a: 49 (type lost; species characterized, probably same as *nubeculosa* Konow).

Hylotoma terminalis* Klug 1814: 297, pl. 7, fig. 5. F. "Para in Brasilien" (Berlin, F.)— Klug 1834: 235.— Norton 1867: 73.— Kriechbaumer 1884: 63, 286.— Dalla Torre 1894: 344 (*terminata* !). **New synonymy.

Labidarge terminalis: Konow 1899a: 310.— Konow 1904: 232, 237.— Konow 1905a: 17.— Konow 1907a: 261, 420 (syn.: *dryope* Kirby).

Scobina terminalis: Mc Callan 1953: 126 (Venezuela).

Hylotoma dryope* Kirby 1882: 78, pl. 6, fig. 3. *E.* "Amazons" (London, *E.*)—Dalla Torre 1894: 332. **New synonymy.

Labidarge dryope: Konow 1904: 237.—Konow 1905a: 16.

Labidarge vitreata* Konow 1904: 235. *M.* "Brasilia (Pará)" (Eberswalde, *M.*)—Konow 1905a: 17.—Konow 1907a: 262, 421.—Oehlke and Wudowenz 1984: 419 (holotype). **New synonymy.

Caloptilia vitreata: Rohwer 1912a: 1 (probably male of *nubeculosa* Konow).

Labidarge nubeculosa* Konow 1904: 236. *E.* "Brasilia (Pará, Paramaribo)" (Eberswalde, *E.*)—Konow 1905a: 16.—Konow 1907a: 262, 421-422.—Malaise 1937a: 49 (possible syn. of *melanocephala*).—Oehlke and Wudowenz 1984: 400 (3 *E.* syntypes at Eberswalde). **New synonymy.

Caloptilia nubeculosa: Rohwer 1912a: 1.

Labidarge tegularis* Konow 1907c: 220-221. *M.* "Brasilia, Coca" (Madrid, *M.*)—Konow 1907a: 262, 420-421.—Oehlke and Wudowenz 1984: 415 (1 *M.* syntype at Eberswalde, "Brasilien, Coca"). **New synonymy.

Caloptilia nubeculosa rosenbergi* Rohwer 1911b: 383. *E.* "Chawchamayo, Peru" (Washington, *E.*). **New synonymy.

This is a color variable species and color forms are represented in the above synonymy. The wings of the female vary from mostly blackish to somewhat hyaline with a blackish apex to yellowish with a blackish apex. The wings of the male are nearly always blackish but may be nearly hyaline at the base with a blackish apex. The amount of black on the mesonotum varies from none to most of the prescutum, lateral lobes, and tegulae black; the darker mesonotum is more prevalent in males.

I was able to see a specimen that I regard as the holotype from Paris, and it may be the specimen referred to by Lepeletier and Serville in 1828. It bears a small round label with "Cayenne" written underneath. This specimen agrees with Malaise's (1937a) interpretation. It is the color form with darker wings and an orange thorax. The species described as *terminalis*, *dryope*, *nubeculosa*, and *rosenbergi* have yellowish to pale yellowish wings with the apex blackish. Those species described as *vitreata* and *tegularis* represent males of *melanocephala*. The lectotype, here designated, of *L. tegularis* is a male at Madrid labeled "Coca, Martinez" and with Konow's determination label. Another male with the same data is a paralectotype. The type locality is probably in Ecuador, not Brazil. The lectotype, here designated, of *L. nubeculosa* is a female labeled "Oyapock, 17.6.1904, Ducke," "coll. Konow,"

"TYPUS," "Labidarge nubeculosa Knw., Brasil, Para." Two other females labeled types are also at Eberswalde, one from Paramaribo, the other from "Brasil, Para, 27.3.1907, Ducke." Both are paralectotypes. The holotype of *dryope* Kirby is BM #1.60.

melanopyga (Klug), **new combination** — Argentina (Entre Rios, Formosa, Misiones); Brazil (Paraná, Rio de Janeiro, Rio Grande do Sul, Santa Catarina, São Paulo); Paraguay

**Hylotoma melanopyga* Klug 1834: 237. *E.* "Brasilien" (Berlin, *E.*)—Norton 1867: 73.—Kriechbaumer 1884: 287.—Dalla Torre 1894: 337.

Labidarge melanopyga: Konow 1899a: 310.—Konow 1905a: 16.—Konow 1907a: 261, 417-418.

Hemidianeura cameroni* Kirby 1886: 34, pl. 1, fig. 10. *E.* "Rio Grande do Sul" (London, *E.*)—Dalla Torre 1894: 321 (*cameronii*).—Konow 1905a: 26. **New synonymy.

Stelidarge diptycha* Konow 1901: 58. *E.* "Brasilia" (Budapest, *E.*)—Konow 1905a: 16.—Konow 1907a: 191, 192.—Oehlke and Wudowenz 1984: 377 ("1 *E.* (?) syntypus, Brasilien" at Eberswalde). **New synonymy.

Two females labeled types of *melanopyga* are at Berlin, both have the data "13663," "Brasil, v. Olfers." The specimen with Klug's determination label is hereby selected lectotype and the other specimen is a paralectotype. Two females of *diptycha* were sent to me from Budapest, both labeled "Brasilia, Blumenau," "typus, *Stelidarge diptycha* Knw., 1901." One is hereby designated lectotype, the other a paralectotype, and they have been labeled as such. The holotype of *cameroni* Kirby is BM# 1.59. This is a relatively common species in southeastern Brazil and northeastern Argentina.

nigricollis (Konow), **new combination** — Peru

**Labidarge nigricollis* Konow 1906a: 179-180. *M.* "Peru (Callanga Cuczo)" (Eberswalde, *M.*)—Konow 1907a: 262, 423.—Oehlke and Wudowenz 1984: 398 (holotype).

This male could be a color form of another species. The coloration is as follows: head black with face around and below antennae mostly white; thorax black with lateral angles of pronotum dark orange; abdomen orange with basal plates, anterior margin of 2nd tergum, and apical segment black; legs orange, tibiae and tarsi black; wings uniformly, lightly black infuscated.

nigripennis (Enderlein), **new combination** — Ecuador

**Stelidarge nigripennis* Enderlein 1919: 114. "M" = E. "Ecuador. Sabanilla" (Warszawa, E).

Stelidarge fumipennis Forsius 1925a: 20, 21 (new name for *nigripennis* Enderlein, believed to be preoccupied in *Stelidarge* by *nigripenne* Schrottky [a species in Tenthredinidae]).

The coloration is as follows: antenna and head black, clypeus orange; thorax black with lower half of cervical sclerites, pronotum, and meso- and metapleurae orange (mesepisternum with black spot on upper angle and black stripe on anterior and lower margins); abdomen orange with basal plates and apical 3 segments black; legs orange with tibiae and tarsi black; wings lightly, uniformly black infuscated. Sheath with several very short spines on inner apical margin of scopae (as in Fig. 11).

nigripes (Konow), **new combination** — Colombia; Mexico (Guererro)

**Labidarge nigripes* Konow 1906b: 178-179. E. "Colombia (Ibagué)" (Eberswalde, E).— Konow 1907a: 259, 266.— Oehlke and Wudowenz 1984: 398 (holotype).

The coloration is as follows: antenna and head black; thorax orange with cervical sclerites, center of pronotum, and marks on mesosternum black; abdomen orange with apical segment and sheath black; legs black; wings lightly, uniformly black infuscated. Specimens from Mexico (Acaquizotla and Chilpancingo, Guerrero) are identical to the holotype. A male from Colombia (6 mi. W. Cali, Valle, 1630 m) is similar in coloration but the mesoprescutum, mesonotal lateral lobes, lower mesepisternum, and mesosternum are black.

notata (Klug), **new combination** — Brazil

**Hylotoma notata* Klug 1834: 237. E. "Brasilien" (Berlin, E).— Norton 1867: 73.— Kriechbaumer 1884: 287.— Dalla Torre 1894: 338.

Labidarge notata: Konow 1904: 232.— Konow 1905a: 16.— Konow 1907a: 261, 418.

Two females regarded as types are at Berlin. The one with the labels "13664," "Brasil, v. Olfers.," "Typus," and "notata Kl., Brasil, v. Olf." is hereby designated lectotype. The other specimen, without a determination label, is a paralectotype. The coloration

is as follows: antenna and head black; thorax orange with spot on mesoprescutum black; abdomen black with basal 2 terga and basal 4 or 5 sterna orange; legs orange with tibiae and tarsi black; wings lightly, uniformly black infuscated; costa and stigma paler to orange.

notaticollis (Konow), **new combination** — Bolivia; Colombia; Costa Rica; Ecuador; Panama; Peru; Venezuela

**Labidarge notaticollis* Konow 1899a: 310-311. E. "Bolivia" (Eberswalde, E).— Konow 1905a: 16.— Konow 1907a: 261, 417 (Colombia).— Oehlke and Wudowenz 1984: 399 (2 E syntypes at Eberswalde).

Labidarge galumnata* Konow 1906b: 179. M. "Colombia (Ibagné Tolima)" (Eberswalde, M).— Konow 1907a: 258, 264-265.— Oehlke and Wudowenz 1984: 384 (holotype). **New synonymy.

Caloptilia nigrostoma* Rohwer 1912a: 1-2. E, M. "Paraiso, Canal Zone, Panama" (Washington, E). **New synonymy.

The only difference between the described species is the presence or absence of a black mark on the mesoprescutum. This black mark is usually most obvious in males. Also the type of *galumnata* (M) has most of the dorsum of the abdomen black. Two females of *notaticollis* labeled "typus" are at Eberswalde, one is labeled "Bolivia" the other "Mapiri, Bolivia." The former, with Konow's determination label, is here designated lectotype, and the other is a paralectotype.

paradorsalis Smith, **new species** — Costa Rica; Guatemala; Mexico (Guerrero, Jalisco, Michoacán, Morelos, Puebla, Veracruz)

Scobina paradorsalis Smith.

Female.— Length, 9.0-10.5 mm. Black with pronotum (except anterior margin), tegula, mesonotum, usually metanotum, upper 2/3 to 1/3 of mesepisternum, and upper 1/2 mesepimeron reddish; forefemur and foretibia whitish, mostly on outer surfaces. Wings darkly, uniformly infuscated black; veins and stigma black. Antennal length to head width as 11.0:6.3; lower interocular distance to eye length as 3.8:3.0; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:0.8:1.3. Forewing with basal anal cell; vein M meets Sc+R apical to Sc and veins M and Rs+M meet Sc+R at nearly the same point. Length of hindbasitarsus to length of remaining tarsal segments combined as 3.0:3.0. Scopae of sheath slender, spines on inner apical margin small (as in Fig. 11). Lancet as in Fig. 17.

Male.— Length, 7.5-8.5 mm. Coloration similar to

that of female; mesepisternum may be nearly entirely black, pronotum may be black, and mesonotum may have prescutum black and/or scutellum black. Antennal length to head width as 10.2:5.0; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:1.0:1.0. Genitalia as in Fig. 61.

Holotype.— E, "Cuernavaca, Mor., Mexico, VI-1945, N.L.H. Krause" (Washington).

Paratypes.—COSTA RICA: Guanacaste Province, Santa Rosa National Park, 11-V-1-VI-1985, Malaise trap, D.H. Janzen (1 E, 2 M); same except dates, 27-IV-11-V-1985 (1 E), 1-22-VI-1985 (1 E), 5-26-X-1985 (1 M), 1-VII-78 (1 m), 8-VII-78 (1 m), 24-VII-78 (1 m), 24-V-78 (1 m), 23-VI-78 (1 m), 1-VII-77 (3 m), 2-VII-77 (4 m), 12-VII-77 (1 m), 24-VII-77 (1 m), 25-VI-77 (2 m), 5-VI-77 (1 m), 29-VI-77 (2 m), 5-VII-77 (1 m), 27-VII-77 (1 m). GUATEMALA: San Jose, 6.8, Fred K. Knab (1 E). MEXICO: "Mex" (2 E); Guadalajara, Crawford (1 M); Tierra Colorada, Guerrero, 2000 ft., Oct., H.H. Smith (1 E); Chilpancingo, Guerrero, 4600 ft., Aug., H.H. Smith (1 E); Amula, Guerrero, 6000 ft., H.H. Smith (1 M); Chilpancingo, Guer., 7-24-61, R. & K. Dreisbach (2 E), same, 3800', 30 July 1962, H.E. Evans (1 E); Puebla, 17.7 mi. SE Iz. da Matamoros, 20 Aug. 1969, 4500', George W. Byers (1 E); 11 mi N. Pihuamo, Jal., VII-19-66, P.M. & P.K. Wagner (1 M); Morelos, 6 mi. E Cuernavaca, 1 Sept. 1974, G. Bohart, W. Hanson (1 M); 6 mi NW Quinoga, Mich., VII-11-1968, F. D. Parker, L. A. Stange (1 M); Cotaxtla Exp. Sta., Cotaxtla, Ver., VIII-13-1962, D. H. Janzen (1 E); Ver., Lake Catemaco, 5 mi. S., VII-6-61, D.H. Janzen (1 M); Guerrero, Iguala, VIII-19-1981, A. & M. Michelbacher (1 M); 3 mi. E. Las Cruces, Guerrero, IX-27-1964, A.E. Michelbacher (1 M). (Berkeley, Champaign, London, Logan, College Station, Cambridge, Lawrence, Davis, Washington, Townes Coll.).

Remarks.—The coloration is very similar to that of *dorsalis* except that part of the mesepisternum is usually reddish. Structurally, *paradorsalis* differs from *dorsalis* by vein M meeting Sc+R apical to Sc and close to the point where Rs+M meets Sc+R, by the slender scopae of the female sheath which has much smaller spines on the inner apical margin, and by the lancet (compare Figs. 17, 18).

poecila (Klug), **new combination** — Belize; Guatemala; Honduras; Mexico (Campeche, Chiapas, Hidalgo, Puebla, Oaxaca, San Luis Potosi, Tabasco, Tamaulipas, Veracruz, Yucatán)

**Hylotoma poecila* Klug 1834: 239. M. "Mexiko" (Berlin, M).— Norton 1867: 64, 68-69 (Mexico records).—

Cameron 1883: 38 (Guatemala).— Kriechbaumer 1884: 289.— Dalla Torre 1894: 339.

Labidarge poecila: Konow 1905a: 17.— Konow 1907a: 260, 271.— Konow 1907c: 221.— Konow 1907e: 489 (E).

Hylotoma intermedia* Cameron 1883: 38. E. "Guatemala, Panzos" (London, E).— Dalla Torre 1894: 335. **New synonymy.

Arge intermedia: Konow 1905a: 19.

Labidarge intermedia: Konow 1907a: 260, 270.

**Caloptilia townsendi* Ashmead 1898: 212. E. No locality. (Washington, E).— Rohwer 1911a: 105-106 (E, M described; type E from "San Rafael, Jicoltepec, Mexico").

New synonymy.

Labidarge pullipennis* Konow 1907c: 221. M. "Mexico" (Madrid, M).— Konow 1907a: 260, 271.— Oehlke and Wudowenz 1984: 406 ("(M (?) holotypus, Mexiko. Nach der Beschreibung soll der Typus in Museum Madrid sein."). **New synonymy.

Scobina fasciata* Enderlein 1919: 113-114. E. "Mexiko" (Warszawa, E). **New synonymy.

The lectotype, by present designation, of *pullipennis* is a male at Madrid labeled "Mexico" and with Konow's determination label. The holotype of *intermedia* Cameron is BM#1.62. This is one of the most commonly collected species in Mexico. It has black tibiae and tarsi, a black head (usually with face paler), black at the apex of the abdomen, and bicolored wings with the base and apex black and yellow at the center. The mesonotum may be all orange or with black stripes on the mesonotal lateral lobes and sometimes on the prescutum, especially in some males.

poeciloides (Ashmead), **new combination** — Mexico (Baja California Sur, Chiapas, Chihuahua, Colima, Durango, Jalisco, Nayarit, San Luis Potosi, Sinaloa, Tabasco, Veracruz, Yucatán)

**Hylotoma poeciloides* Ashmead 1895: 542-543. M. "San José del Cabo" (San Francisco, M).

Caloptilia piceoterga* Rohwer 1911b: 383. M. "Cordoba, Vera Cruz, Mexico" (Washington, M). **New synonymy.

Color variation necessitates citing this species in several parts of the key. Most variation is in the male. The species described as *piceoterga* is a dark color form with most of the mesonotum, mesopleuron, mesosternum, and dorsum of the abdomen black. Females are mostly orange with the antenna, head, tibiae and tarsi, and sheath black, and usually with a small black spot on the mesonotal lateral lobes adjacent to the tegulae. This is a relatively common species in Mexico.

rubricollis (Klug), **new combination** — Argentina (Formosa, Misiones); Brazil (Minas Gerais, Paraná, Rio de Janeiro, Santa Catarina, Santos, São Paulo)

**Hylotoma rubricollis* Klug 1834: 236. F, M. "Brasilien" (Berlin, F).— Norton 1867: 73.— Kriechbaumer 1884: 286.— Dalla Torre 1894: 342.

Labidarge rubricollis: Konow 1899a: 312.— Konow 1905a: 17.— Konow 1907a: 263, 425.

Stelidarge duckei* Konow 1906b: 253. M. "Brasilia (Barbacena)" (Eberswalde, M).— Konow 1907a: 191, 257.— Oehlke and Wudowenz 1984: 378 (holotype). **New synonymy.

Stelidarge bicolor* Jörgensen 1913: 256-258. F, (M misdet. ?). "Monte de Bonpland (Misiones)" (La Plata, F). **New synonymy.

I examined two of three specimens of *rubricollis* at Berlin. The lectotype, here designated, is a female labeled "13657," "Brasilien, Sello S.," "Typus," "*rubricollis* Kl., Brasil mer., Sell." The other specimen, a male, is a paralectotype. For *bicolor*, Jörgensen did not state how many specimens he had, only "en Septiembre - Diciembre." Six specimens under this name were sent to me from La Plata, three of which are *bicolor*, and the lectotype here designated is a female labeled "8-IX-10, Misiones, Bompland, Jörgensen," "*Stelidarge bicolor* n. sp.," "1838," and "Col. P. Jörgensen." Two other females are paralectotypes and have the same data except for the dates, 9-IX-10 and X-1910. The other three specimens, 2 females and 1 male, are *S. melanopyga*, consequently, the male Jörgensen described is apparently not *bicolor* if that was the male I examined. This species and *stigmaticollis* are similar and possibly represent color differences of a single species. In *rubricollis* the thorax is orange with sometimes the metapleuron, metanotum, and cervical sclerites black. *Scobina stigmaticollis* has more black. The mesosternum, lower part of the mesepisternum, mesoprescutum, and sometimes the tegula and mesoscutellum are black. The two are sympatric, and more information will be needed to determine their status.

scitula (Konow), **new combination** — Peru

**Labidarge scitula* Konow 1904: 233. M. "Peru (Callanga, Cuczo)" (Eberswalde, M).— Konow 1905a: 17.— Konow 1907a: 261, 419.— Oehlke and Wudowenz 1984: 411 (holotype).

This is possibly the male of another species. The coloration is as follows: head black; thorax black with

upper mesepisternum, pronotum, and mesoscutellum orange; abdomen black; legs orange with tibiae and tarsi black; wings faintly yellowish infuscated.

stigmaticollis (Klug), **new combination** — Argentina (Misiones) ?; Brazil (Minas Gerais, Paraná, Rio de Janeiro, Santa Catarina, São Paulo)

**Hylotoma stigmaticollis* Klug 1834: 236. M. "Brasilien" (Berlin, M).— Norton 1867: 73.— Kriechbaumer 1884: 286.— Dalla Torre 1894: 344.

Labidarge stigmaticollis: Konow 1899a: 312.— Konow 1905a: 17.— Konow 1907a: 263, 425.

Stelidarge stigmaticollis: Malaise 1941: 132.

I saw two males from Berlin. The lectotype here designated is labeled "13658," "St. Paul, Sello S.," "*stigmaticollis* Klug, St. Paul, Sell." The other male is a paralectotype and has the same data but lacks Klug's determination label. The color of the female is similar to that of the male. See discussion under *rubricollis*. I have seen specimens from each of the above localities. The Argentina record is based on a male, and I am not certain of its identity.

strophosa (Konow), **new combination** — Argentina (Jujuy, Tucumán); Bolivia; Colombia; Ecuador; Peru; Venezuela

**Labidarge strophosa* Konow 1906b: 180. M. "Peru (Marcapata), Bolivia (Yungas)" (Eberswalde, M).— Konow 1907a: 263, 425.— Oehlke and Wudowenz 1984: 414 (3 M syntypes at Eberswalde).

Labidarge miniatithorax* Enderlein 1919: 115-116. "F" = M. "Ecuador, Loja" (Warszawa, M). **New synonymy.

Three males of *strophosa* labeled as types are at Eberswalde, one from the Peru locality, the other two from the Bolivia locality. The one labeled "Marcapata, Peru" and with Konow's determination label is here designated lectotype, and the other two are paralectotypes. This species is widespread in the Andean region from Venezuela to northern Argentina. It is a black species with various amounts of red or orange on the thorax. Color variation is noted as follows: mesepisternum black or with upper quarter or half red; mesosternum usually black but may be dark reddish; pronotum red or with anterior half black to most all black; mesonotum red or prescutum or scutellum black; tegula red or black; metanotum red or black; basal 3 or 4 abdominal terga black or reddish to orange.

styx Malaise — Argentina (Jujuy, Salta, Santa Fé, Tucumán)

**Scobina styx* Malaise 1949: 2, 9, fig. 1J. E. "Argentina (S. Lorenzo)" (Stockholm, E.)

This is one of the few entirely black species of *Scobina*, the others being *carbonaria* and some *dorsalis*.

suda (Konow), **new combination** — Peru

**Labidarge suda* Konow 1906b: 179. M. "Peru (Callanga Cuzco)" (Eberswalde, M.).— Konow 1907a: 261, 419.— Oehlke and Wudowenz 1984: 414 (holotype).

This is possibly the male of another species. The coloration is as follows: head black with clypeus and labrum orange to white; thorax orange with mesosternum, mesepisternum (except upper corner), and small spot at posterior of each mesonotal lateral lobe black; abdomen orange, apical 2 segments black; legs orange with apex of midtibia, entire hindtibia, and tarsi black; wings uniformly, lightly black infuscated.

testacea (Klug), **new combination** — Brazil (Minas Gerais, São Paulo)

**Hylotoma testacea* Klug 1834: 238. E. "Brasilien" (Berlin, E.).— Norton 1867: 73.— Kriechbaumer 1884: 288.— Dalla Torre 1894: 344.

Labidarge testacea: Konow 1904: 232.— Konow 1905a: 17.— Konow 1907a: 261, 418.

The coloration is as follows: head black; thorax and abdomen orange with apical 2 abdominal segments black; legs orange with narrow stripe on inner margin of hindtibia and 4th tarsal segment of each tarsus black; wings dark yellowish, costa and stigma yellowish.

thoracica (Jörgensen), **new combination** — Argentina (Corrientes, Cordoba, Entre Rios, Formosa, Misiones, San Luis, Salta, Tucumán); Brazil (Santa Catarina); Paraguay

**Stelidarge thoracica* Jörgensen 1913 (Oct.): 258-259. E. M. "Monte de Bonpland" (La Plata, M.).

**Caloptilia thoracica* Schrottky 1913 (Nov.): 704. M. "Bonpland" (La Plata, M.). New synonymy.

Jörgensen attributed this species to Schrottky, but Jörgensen's description predates that of Schrottky's. Jörgensen described both sexes but Schrottky described

only the male. The lectotype of *thoracica* Jörgensen, here designated, is a male labeled "Argentina, Bonpland, 5-IX-1909, P. Jörgensen," "*Caloptilia thoracica* Schrottky M., C. Schrottky det 1912," "Col. P. Jörgensen." The female is a paralectotype. The same male specimen that is the lectotype of *thoracica* Jörgensen is the holotype of *thoracica* Schrottky. This is a black species with various amounts of red on the thorax and base of the abdomen. Color variation is noted as follows: in the female, the mesosternum, small lateral marks on lateral portion of mesonotal lateral lobes, and dorsum of the abdomen may be black; in the male, the mesosternum, tegula, mesonotum, and mesepisternum may be black. Most males have the thorax red with the mesosternum, spot on anterior portion of the mesoprescutum, and spot on each mesonotal lateral lobe black. This species is relatively common in southeastern Brazil and northeastern Argentina.

tina Smith, **new species** — Argentina (Jujuy, Salta, Tucumán)

Scobina tina Smith.

Female.— Length, 8.5-9.5 mm. Head black; palpi white to orange. Thorax black with pronotum (except anterior margin), tegula, mesonotal lateral lobes, center and posterior mesoscutellum, and sometimes metanotum reddish; sometimes mesonotum entirely black and sometimes meseipisternum partly reddish. Abdomen black or with basal segments or terga to 5th orange. Legs black with outer surface of forefemur and foretibia whitish. Wings yellow with apex beyond stigma blackish; veins and stigma yellow in yellow part, black in apical black part. Antennal length to head width as 10.6:5.2; lower interocular distance to head width as 3.1:2.4; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:0.6:0.7. Forewing with basal anal cell; vein M meets Sc+R apical to Sc and veins M and Rs+M meet Sc+R at nearly the same point. Length of hindbasitarsus to length of remaining tarsal segments combined as 3.0:3.0. Scopae of sheath slender, with very short spines on inner apical margin (Fig. 11). Lancet as in Fig. 25.

Male.— Length, 6.5-8.0 mm. Coloration and variation similar to that of female, more commonly basal 5-6 segments of abdomen orange with apex black. Antennal length to head width as 10.8:4.7. Genitalia as in Fig. 49.

Holotype.— E. "Argentina, Horco Molle, Tuc., Mar. 7-13, 1966, L. A. Stange (Tucumán).

Paratypes.—ARGENTINA: Same data as for holotype (3 E, 13 M), same except Apr. 3-10, 1966 (5 M), same except Jan 15-19, 1966 (2 M); Villa Nogues, Tucumán, XI-26/28-64, 1250 m, C. Porter (3 E), same except XII-5/8-64 (1 E); Horco Molle, Tucumán, IV-9-30-1968, C.C. Porter (2 E, 2 M), same except dates, III-18-21-68 (1 M), Mar. 25-Apr. 30, '66 (3 E, 4 M), 10-23 Dec. 1967 (2 E), I-19-66, L. A. Stange (1 E), 8-V-1966, L. A. Stange (1 E); Tucumán, Horco Molle, Departamento Taff, 1-XII-1971, C. Porter (2 M), XI-24-71 (1 E); Tafi del Valle, Tucumán, March 3-12, '66, C.C. Porter (1 E, 1 M); Taficillo, Tucumán, 1700 m, I-1958, De La Sola (1 E); S. Pedro Colalao, Tucumán, XII-5/19-64, C.C. Porter (1 E); Tucumán, San Javier (C. Univ.), 10-I-1962, Willink (1 M); Tucumán, Cadillal, I-1922 (1 E); Catamarca, Gunancalá, 19-I-1960, A. Arganarás (1 E); La Caldera, Salta Pr., XII-11-75, R.M. Bohart (1 E); Jujuy, Posta Lozano, III-21-23-69, C.C. Porter (2 E), 8-XII-69 (1 M); Tucumán, I-1953, S.P. Colalao, F.H. Walz (1 M); Prov. Tucumán, San Javier, 1100 m, XI-1977, R. Golbach (3 E); Salta, Campo Quijano, XII-81, M. Fritz (2 E); Salta, Rosario de Lerma, XII-1982, M.A. Fritz (1 M). (Tucumán, Washington, Cambridge, Davis, Gainesville, Townes Coll., Fritz Coll.).

Remarks.—Coloration is diagnostic for this species. It is black, though with some reddish on the thorax and basal abdominal segments, with contrasting yellow wings.

torquata (Konow), **new combination** — Argentina (Buenos Aires, Entre Rios, Misiones); Brazil (Rio Grande do Sul, Santa Catarina); Paraguay

**Labidarge torquata* Konow 1903: 106. E. "Brasil (Rio Grande do Sul)" (Eberswalde, E).—Konow 1905a: 17.—Konow 1907a: 262, 423-424.—Oehlke and Wudowenz 1984: 416 (holotype).

Labidarge torquata* var. *schrottkyi* Konow 1906b: 181. E, M. "Paraguay" (Eberswalde, E).—Konow 1907a: 424.—Oehlke and Wudowenz 1984: 410 (5 M, 1 E syntypes at Eberswalde). **New synonymy.

I saw 1 female and 5 males of *schrottkyi* from Eberswalde, each labeled "Villa Encarnat., Paraguay." The female is the lectotype and the males are paralectotypes. The variety described as *schrottkyi* is a paler form of *torquata*, with the coxae, femora, and mesoscutellum usually pale yellow orange and sometimes the costa and stigma of the forewing amber instead of black.

ventris Smith, **new name** — Brazil (Rio de Janeiro, São Paulo)

**Hylotoma ventralis* Klug 1834: 240. E, M. "Brasilien" (Berlin, M) (preoccupied by *Hylotoma ventralis* Spinola 1806).—Norton 1867: 73.—Kriechbaumer 1884: 289.—Dalla Torre 1894: 347.

Labidarge ventralis: Konow 1905a: 17.

Stelidarge ventralis: Konow 1907a: 192, 257.—Forsius 1925a: 20.

Of two males sent to me from Berlin, the one with the determination label "*ventralis* Kl., St. Paul., Sell." is here designated lectotype. The other male without a determination label is a paralectotype. The coloration is as follows: antenna and head black; thorax black; abdomen black dorsally, orange ventrally; legs orange with tibiae and tarsi black; wings darkly, uniformly black infuscated.

vittata (Mocsáry), **new combination** — Brazil (Minas Gerais)

**Labidarge vittata* Mocsáry 1909: 3. E. "Brasil: Minas Gera.s" (Budapest, E).

This species is like *bivittata*, but has the thorax orange with the metascutellum black and the pattern of the abdominal dorsum is orange yellow with a median, longitudinal black stripe and apical two segments black. This is possibly a color variety of another species.

xanthospila (Klug), **new combination** — Brazil (Minas Gerais, Rio de Janeiro, São Paulo)

**Hylotoma xanthospila* Klug 1834: 239-240. E, M. "Brasilien" (Berlin, M).—Norton 1867: 73.—Kriechbaumer 1884: 289.—Dalla Torre 1894: 347.

Labidarge xanthospila: Konow 1903: 106.—Konow 1904: 232.—Konow 1905a: 17.—Konow 1907a: 261, 418.

Stelidarge fasciata* Forsius 1925a: 19-20. E. "Südbrasilien" (Stockholm, E) (preoccupied by *Scobina fasciata* Enderlein 1919). **New synonymy.

Forsius' *fasciata* is a female of this species. I saw two males of *xanthospila* from Berlin (2 of 5 examples); the one with the determination label "*xanthospila* Kl., St. Paul, Sell." is here designated lectotype. The other specimen is a paralectotype. The female Klug described must be among the three examples I did not see.

zantara Smith, new species — Brazil (Santa Catarina)Genus **ARGE** Schrank

Scobina zantara Smith.

Female.—Length, 7.0-8.3 mm. Antenna and head black; palpi yellowish. Thorax orange yellow with mesepisternum and mesosternum and most of mesoprescutum and mesonotal lateral lobes black. Abdomen orange with apical 2 or 3 segments and sheath black. Legs orange to white with apical 1/5 hindtibia and tarsi black, fore- and midbasitarsi may be mostly whitish. Wings uniformly dark yellowish; veins brownish, stigma yellowish. Antennal length to head width as 10.5:4.8; lower interocular distance to eye length as 3.0:2.2; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.9:0.7:0.5. Forewing with basal anal cell; *mei*n M meets Sc+R basal to Sc and some distance from where Rs+M meets Sc+R, distance between Rs+M and M on Sc+R more than half length of vein M (Fig. 3). Length of hindbasitarsus to length of remaining tarsal segments combined as 3.2:2.9. Sheath moderately stout, with 2 stout spines on inner apical margin. Lancet as in Fig. 22.

Male.—Length, 6.2-7.4 mm. Coloration similar to that of female, sometimes with abdomen darker being blackish laterally. Antennal length to head width as 10.5:4.3. Genitalia as in Fig. 41.

Holotype.—E, "Brasilien, Nova Teutonia, 27° 11' B, 52° 23' L, 300-500 m, 30-I-1962, Fritz Plaumann" (Washington).

Paratypes.—ARGENTINA: Misiones, Dos de Mayo, 18.IX.1973, Willink-Tomsic (1 E); Misiones, San Pedro, 16-XI-1973, Escobar-Claps (1 M). BRAZIL: Same data as for holotype (1 E), same except dates, Feb. 1965 (1 E), II-1966 (1 E), 16-I-1962 (1 E), 17-I-1967 (1 E), Sep. 1961 (1 E), 6-II-1962 (1 E), I-1962 (3 E), III-1968 (1 E), Feb. 1966 (1 E), Mar. 1966 (1 E), I-1966 (2 E), X-1968 (1 E), X-1966 (1 E), 30-III-1966 (1 E), 15 Mar. 1966 (1 E), Jan. 1966 (1 M), VIII-1969 (1 E), May 14, 1952 (1 E), Nov. 1937 (1 E), I-1937 (1 E), 27-I-1937 (1 E), 30-XI-1938 (1 E), 16-IV-1938 (1 E), 26-VIII-1938 (1 E, 1 M), 4-IX-1938 (1 E), 12-XI-1938 (1 E), 24-II-1938 (1 E), III-1967 (4 E, 2 M). (Washington, São Paulo, London, New Haven, Tucumán)

Remarks.—The coloration resembles some specimens of *torquata*, but the forewing venation of *zantara* (with vein M meeting Sc+R basal to Sc and some distance from Rs+M, Fig. 3) and lancet and male genitalia (Figs. 20, 22, 41, 45) separate the two.

Cryptus Jurine 1801: 163. Suppressed by Internatl. Comm. Zool. Nomencl., Op. 135, 1936.

Arge Schrank 1802: 209. Type species: *Tenthredo enodis* Linnaeus. Desig. by Rohwer 1911a.

Hylotoma Latreille 1802: 302. Type species: *Tenthredo rosae* Linnaeus. Monotypic.

Corynia Imhoff and Labram, in Labram and Imhoff 1836: 23. Type species: *Corynia rosarum* Imhoff and Labram. Desig. by Rohwer 1911a.

Acanthoptenos Ashmead 1898: 212. Type species: *Acanthoptenos weithii* Ashmead. Orig. desig.

Bathylepta Konow 1906a: 123. Type species: *Bathylepta procer* Konow. Monotypic.

Miocephala Konow 1907b: 162-163. Type species: *Miocephala chalybea* Konow. Monotypic.

Didocha Konow 1907d: 306. Type species: *Didocha braunsi* Konow. Monotypic.

Rhopalospiria Enderlein 1919: 116. Type species: *Rhopalospiria rubiginosa* (Beauvois). Orig. desig.

Triarge Forsius 1931: 19. Type species: *Triarge plumbea* Forsius. Orig. desig.

First and 2nd antennal segments each about as long as or longer than broad (Fig. 68). Head without high, sharp carinae, sculpturation of head with rounded elevations though sometimes blunt supraclypeal carina present; genal carina absent. Clypeus subtruncate; malar space equal to or shorter than diameter of front ocellus; eyes slightly converging below, lower interocular distance usually greater than eye length; maxillary palpus 6-segmented, labial palpus 4-segmented, segments of uniform width (Fig. 69), maxillary palpus usually as long as or longer than eye length. Pronotum with furrow extending from area of tegula to anterolateral margin. Forewing (Figs. 66, 67) with radial cell closed; intercostal vein present; costa narrower than intercostal area; basal anal cell present. Hindwing (Fig. 66) with radial cell closed; anal cell present. Mid- and hindtibia each with preapical spine (as in Fig. 5); apical tibial spines usually longer than apical width of tibiae; inner apical foretibial spine longer than outer spine; tarsal claws simple. Sheath of female rounded, without narrow scopae (Figs. 70, 71).

Arge is a large genus in the Ethiopian and Holarctic regions of the world with nearly 250 species. It is found throughout North America and extends as far south as Colombia in the neotropics. Species have the characteristics of *Scobina*, but the head lacks sharp carinae, there is no genal carina, a pronotal furrow is present, and the sheath is broadly rounded, not pincer-like as in *Scobina*.

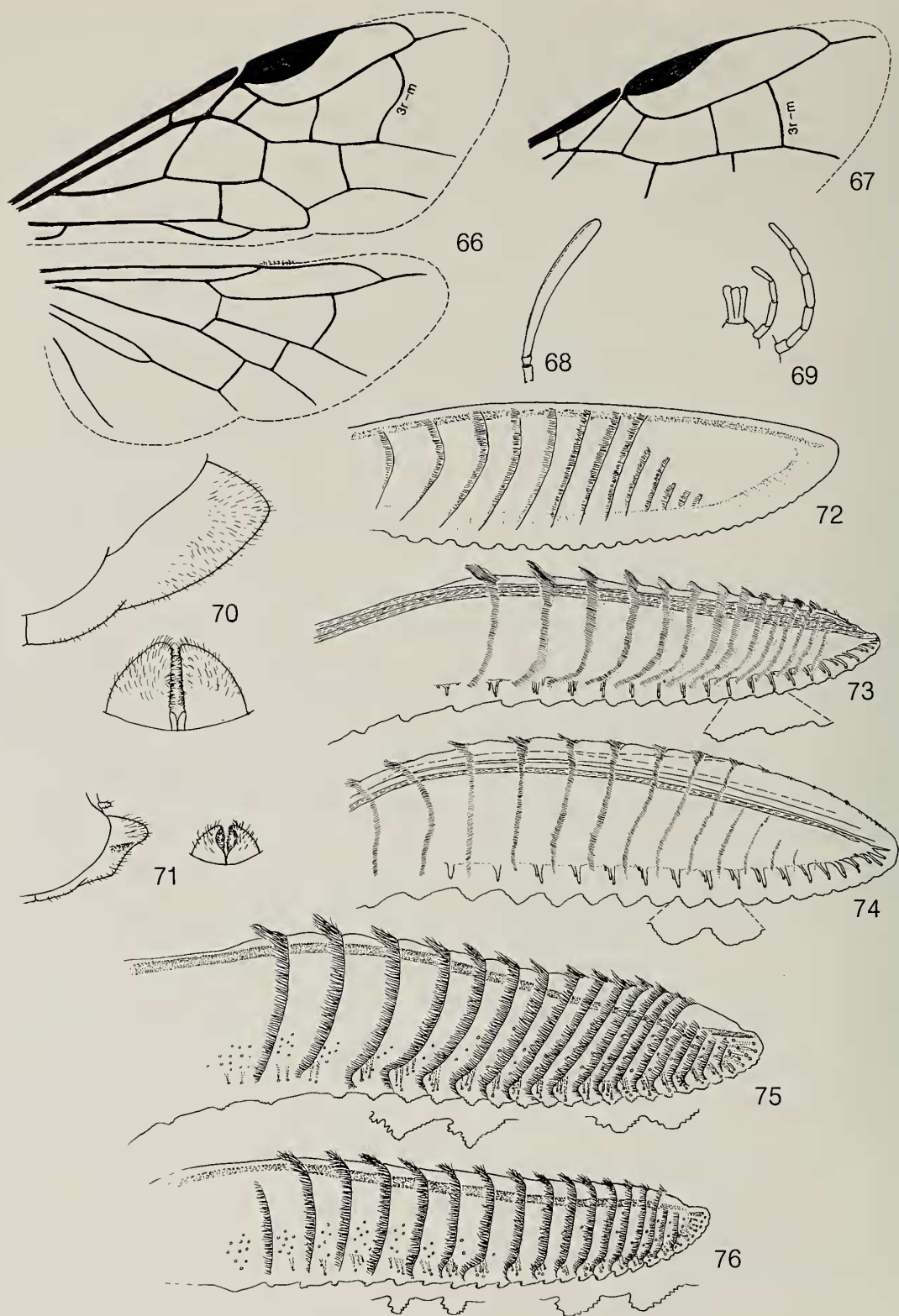
Smith (1989) revised the genus for the New World. Only the species known from Mexico and southward are treated here, and all belong in the *humeralis* group of Smith (1989b), except *procera* which belongs in the *pectoralis* group. Hosts are not known for the species treated here, but two species in the *humeralis* group from eastern North America feed on species of *Rhus* and

species of the *pectoralis* group which are most common in the temperate deciduous forests feed on *Betula*, *quercus*, *Ulmus*, *Salix*, and *Amelanchier*.

Males are poorly known and have not been associated with many species, therefore only a few are included and that part of the key should be used cautiously.

KEY TO SPECIES

1. In forewing vein 3r-m straight (Fig. 67); female sheath rounded in lateral view (Fig. 70) (orange with antenna, head, cervical sclerites, pronotum except lower lateral half, tegula, mesepimeron, metathorax, spot on posterior half of mesoscutellum, legs, and sheath black; lancet as in Fig. 72) *procera* (Klug)
— In forewing, vein 3r-m markedly curved (Fig. 66); female sheath concave below in lateral view (Fig. 71). 2
2. Female 3
— Male 13
3. Head and thorax black 4
— Head orange or orange with ocellar area and clypeus and labrum black or head black with large orange spot behind each eye; thorax usually mostly orange 9
4. Legs entirely black 5
— Legs with part of tibiae and usually part of tarsi white 6
5. Wings bright orange, contrasting with black body; basal plates black; long conspicuous setae at base of apical sternite; lancet as in Fig. 75, serrulae pointed at apices *flavoalaris* Smith
— Wings black; basal plates white; without conspicuous setae at base of apical sternite; lancet as in Fig. 78, serrulae rounded at apices *magnidens* Smith
6. Wings black; white on legs confined to tibiae (lancet as in Fig. 74) *basimacula* (Cameron)
— Wings hyaline to yellow, commonly with a black spot below stigma or black streak in radial cell or antero-apical section of wing; white on legs on tibiae and tarsi 7
7. Abdomen with most of basal plates and terga 4 to apex yellow orange (lancet as in Fig. 80) *nugana* Smith
— Abdomen black 8
8. Forewing with black spot below stigma; lancet as in Fig. 79, serrulae very slender, those at apex extend around rounded apical margin *mexicana* Pasteels
— Forewing with black streak in antero-apical section following vein Rs; lancet as in Fig. 73, serrulae low and rounded *arida* Smith
9. Head black with large orange spot behind each eye; thorax black with upper 2/3 of mesepisternum orange (abdomen black with basal plates white, terga 2 and 6-9 orange; wings slightly orange with black streak in antero-apical section; lancet as in Fig. 81) *rufomacula* Smith
— Head orange, at most with ocellar area or clypeus and labrum black; thorax usually with orange on other parts in addition to mesepisternum 10
10. Legs black (ocellar area, clypeus and labrum black; thorax orange with mesoprescutum, mesoscutellum, and mesosternum black; forewing with dark streak in antero-apical section; lancet as in Fig. 77, serrulae deep, annular hairs long) *longiserrula* Smith
— Legs with tibiae and tarsi mostly white, femora may be partly pale. 11
11. Antenna orange, black only on apical 1/2-1/3 of flagellum; lancet as in Fig. 82, annular hairs short.
..... *spiculata* (MacGillivray)
— Antenna black; lancet as in Figs. 76, 83, annular hairs long 12
12. Mesoscutellum black (sometimes orange spot at center); abdomen orange or sometimes blackish bands on segments; lancet as in Fig. 76, serrulae more rounded. *illuminata* Smith
— Mesoscutellum orange; abdomen with only terga 2-4 orange; lancet as in Fig 83, serrulae more pointed at apices. . .
..... *vittata* (Kirby)
13. Tibiae white 14
— Legs black 15



Figs. 66-76. *Arge*. 66, Forewing and hindwing of *A. spiculata*. 67, Forewing of *A. procera*. 68, Antenna of *A. spiculata*; 69, Palpi of *A. spiculata*; 70, Sheath of *A. procera*; 71, Sheath of *A. spiculata*. Lancets of 72, *A. procera*; 73, *A. arida*; 74, *A. basimacula*; 75, *A. flavoalaris*; 76, *A. illuminata*.

14. Wings black; genitalia as in Fig. 84 *basimacula* (Cameron)
 — Wings hyaline, possibly blackish area in radial cell; genitalia as in Fig. 86. *arida* Smith
 15. Wings black; genitalia as in Fig. 88 *spiculata* (MacGillivray)
 — Wings hyaline 16
 16. Costa black, stigma yellow; blackish streak in radial cell of forewing; apical tergum black; genitalia as in Fig. 87
 *vittata* (Kirby)
 — Costa and stigma black; yellow extends to apex of forewing; apical tergum white; genitalia as in Fig. 85
 *flavoalaris* Smith

SPECIES

***arida* Smith — Mexico (Sonora); U.S.A. (Arizona)**

**Arge arida* Smith 1989: 93-95, fig. 13, 27. E, M. "Huachuca Mts., Ariz." (Champaign, E).

***basimacula* (Cameron) - Colombia; Panama**

**Hylotoma basimacula* Cameron 1883: 36. E. "Panama, Bugaba" (London, E).— Cameron 1899: 468, pl. 20, fig. 14.— Dalla Torre 1894: 326.

Arge basimacula: Konow 1905a: 17.— Konow 1906c: 387.— Konow 1907b: 164.— Konow 1907a: 489.— Konow 1908b: 184-185.— Smith 1989: 95-97, fig. 12, 23 (E, M).

The holotype is BM #1.06. This is the southernmost species of *Arge* in the New World. The only specimen I have seen from Colombia is labeled "Sainte Marthe, Vauvert 9-13" and is at Paris.

***flavoalaris* Smith — Mexico (Guerrero, Oaxaca)**

**Arge flavoalaris* Smith 1989: 102-104, fig. 21, 26. E, M. "Mexico: State of Oaxaca, Monte Alban ruins, 8 mi. SW of Oaxaca" (San Francisco, E).

***illuminata* Smith — Mexico (Nuevo Leon); U.S.A. (Arizona, Texas)**

**Arge illuminata* Smith 1989: 110-111, fig. 20. E. "Sunnyside, Cochise Co., Ariz." (Davis, E).

***longiserrula* Smith — Mexico (Nuevo Leon)**

**Arge longiserrula* Smith 1989: 111-113, fig. 19. E. "Mexico, 10 mi. NW Providencia, Nuevo Leon, 6000" (San Francisco, E).

***magnidens* Smith — Mexico (Guerrero)**

**Arge magnidens* Smith 1989: 113-114, fig. 22. E. "9 mi. S Tierra Colorado, Gro., Mex." (Davis, E).

***mexicana* Pasteels — Mexico (Guanajuato, Jalisco, Nayarit)**

**Arge mexicana* Pasteels 1952: 310-311, fig. 29b, c. E. "Guanaxuato" (Bruxelles, E).— Smith 1989: 114-115, fig. 11 (E, distribution)

***nugana* Smith — Mexico (Jalisco)**

**Arge nugana* Smith 1989: 115-116, fig. 14. E. "Tuxpan, Jal., Mex." (Champaign, E).

***procera* (Klug) — Mexico**

**Hylotoma procera* Klug 1834: 235. E. "Mexiko" (Berlin, E).— Norton 1867: 64, 68.— Kirby 1882: 70.— Cameron 1883: 37.— Kriechbaumer 1884: 286.— Dalla Torre 1894: 339.

Arge procera: Konow 1905a: 20.— Konow 1906c: 387.— Konow 1907b: 169.— Konow 1907a: 489.— Konow 1908b: 185.— Smith 1989: 133-134, fig. 44 (holotype redescribed).

I have seen only the holotype. It is unusual to find a member of the *pectoralis* group this far south since most occur in temperate North America.

***rufomacula* Smith — Mexico (Veracruz)**

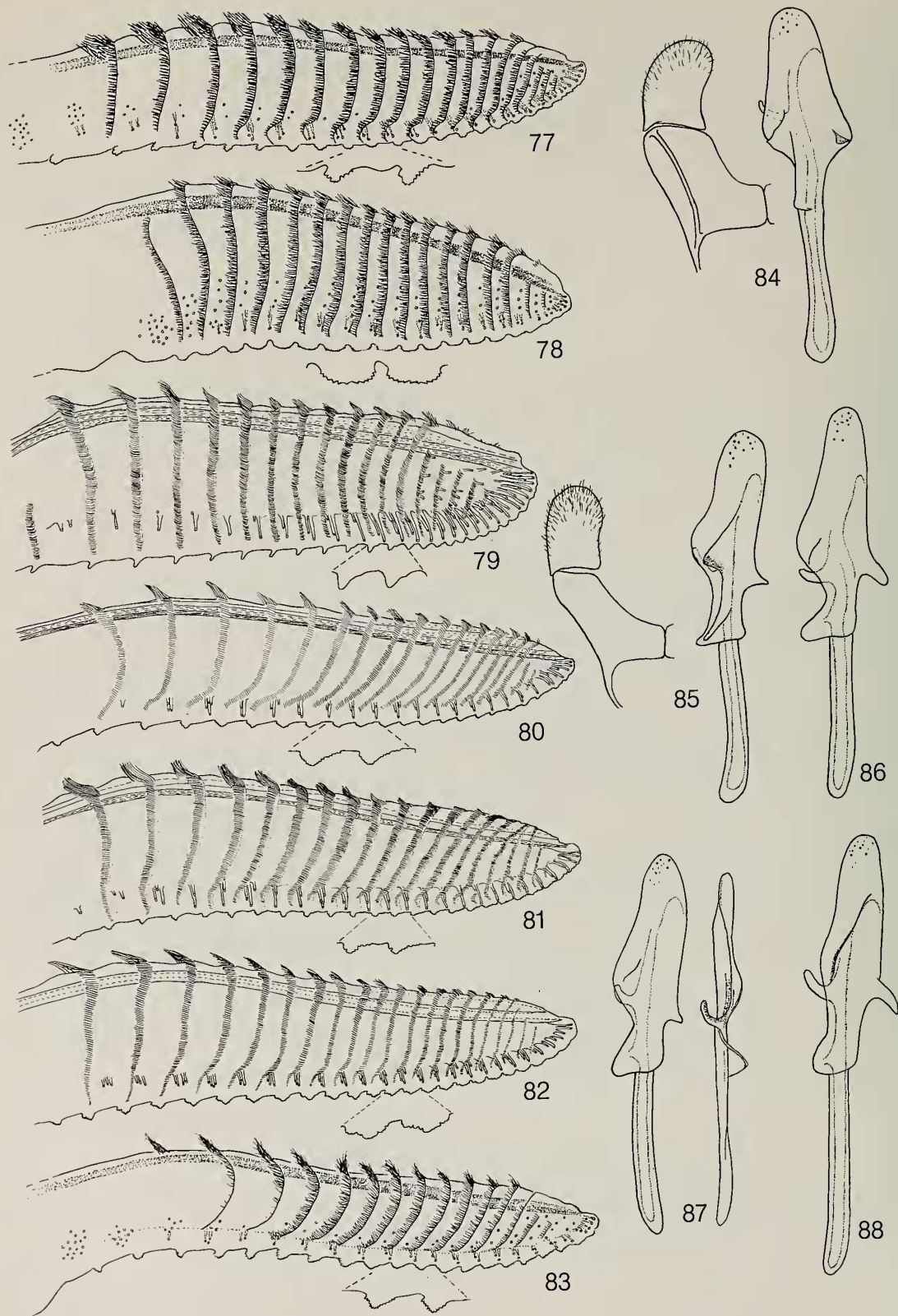
**Arge rufomacula* Smith 1989: 116-118, fig. 17. E. "Cuesta de Misantla, Mexico" London, E.

***spiculata* (MacGillivray) — Mexico (Jalisco, Nayarit); U.S.A. (Arizona)**

**Hylotoma spiculata* MacGillivray 1907: 308. E, M. "Oak Creek Canon, New Mexico, 6,000 ft." (Champaign, E).— Rohwer 1909: 14 (M in key).— Frison 1927: 249.— Webb 1980: 110 (holotype).

Arge spiculata: Ross 1951: 14.— Smith 1979: 22.— Smith 1989: 118-120, fig. 16, 29 (E, M; distribution).

The holotype is labeled Arizona, not New Mexico as given in the original description.



Figs. 77-88. *Arge*. Lancets of 77, *A. longiserrula*; 78, *A. magnidens*; 79, *A. mexicana*; 80, *A. nugana*; 81, *A. rufomacula*; 82, *A. spiculata*; 83, *A. vittata*. Male genitalia of 84, *A. basimacula*; 85, *A. flavoalaris*; 86, *A. arida*; 87, *A. vittata*; 88, *A. spiculata*.

vittata (Kirby) — Mexico (Chiapas, Nuevo Leon, San Luis Potosi, Veracruz)

**Hylotoma vittata* Kirby 1882: 70-71, pl. 6, fig. 2. F. "Mexico" (London, F).— Cameron 1883: 37.— Dalla Torre 1894: 357.

Arge vittata: Konow 1905a: 21.— Konow 1906c: 387.— Konow 1907b: 169.— Konow 1907a: 489.— Konow 1908b: 185.— Smith 1989: 122-124, fig. 18, 28 (F, M; distribution).

The holotype is BM# 1.105.

Mislabeled specimen: A female of *Arge pagana* (Panzer) (at Cambridge) is labeled "Chile." This is a palearctic species and its occurrence in Chile is highly questionable.

Subfamily ATOMACERINAE

Atomacerinae Benson 1938: 373.

Atomacerini Benson 1963: 634.

Antennal flagellum simple in both sexes (Figs. 90, 91); antennal length subequal to or as long as $1\frac{3}{4}X$ head width; antennal insertions on head below level of middle of eyes. Head usually transverse from above and sharply narrowed behind eyes, broader than long; with or without interantennal carina; genal carina absent; eyes small, not converging below, lower interocular distance greater than eye length (Fig. 92). Malar space broad, 1-2X diameter of front ocellus; maxillary palpus 6-segmented, labial palpus 4-segmented (Fig. 94); labium trilobed; maxillary palpus usually longer than eye length; palpal segments of uniform width or 3rd labial palpal segment slightly broadened; each mandible 3-toothed (Fig. 93). Pronotum without diagonal furrow. Cenchri large and close together, distance between them less than half breadth of one; mesosternal-pleural suture faint. Sclerotized portion of basal plates narrow anteriorly, leaving large membranous area. Forewing (Fig. 89) with costa narrower than or subequal to intercostal area; intercostal crossvein (Sc) present; vein 1r joins stigma near junction of Sc+R and stigma; vein M meets Sc+R basal to junction of Rs+M and Sc+R, distance between M and Rs+M on Sc+R equal to more than half length of vein M; radial cell open to faintly closed at apex; with 3 or 4 cubital cells, last closed cubital cell longer on radius than on cubitus (except *A. recta*); basal anal cell absent. Hindwing (Fig. 89) with radial cell

open; anal cell absent. Tibiae without preapical spines; inner foretibial spine about half length of outer spine; tarsal claws simple with large acute basal lobe (Fig. 95).

The Atomacerinae are characterized by the simple antennal flagellum of the male, short, broad head sharply narrowing behind the eyes in dorsal view, three-toothed mandibles, presence of an intercostal crossvein in the forewing, the radial cell of the hindwing open at its apex, absence of an anal cell in the hindwing, lack of preapical spines on the hindtibia, and the simple tarsal claws with an acute basal lobe. The general habitus of the head (broad, narrowing behind the eyes in dorsal view, and small widely separated eyes) and three-toothed mandibles are similar to the Erigleninae, but in that subfamily the male antennal flagellum is furcate, the intercostal crossvein is absent, and the tarsal claws are simple. The simple male antennal flagellum relates the Atomacerinae to the Arginae, but many other characteristics differ, such as the lack of preapical tibial spines. The members of this subfamily have usually been regarded as belonging to a separate suprageneric unit in the Argidae, and I believe the unique characters warrant subfamily status.

This subfamily is represented by a single genus, *Atomacera*.

Genus ATOMACERA Say

Atomacera Say 1836: 212. Type species: *Atomacera debilis* Say. Desig. by Malaise 1937a.

Micrange Ashmead 1898: 213. Type species: *Atomacera ruficollis* Norton. Orig. desig.

Braunsiola Konow 1899a: 312. Type species: *Braunsiola truculenta* Konow. Monotypic.

Atomaceros Konow 1905a: 28. Emendation.

Spegazziniella Jörgensen 1913: 260. Type species: *Spegazziniella ovata* Jörgensen. Monotypic.

Argina Forsius 1925a: 2-3. Preoccupied by *Argina* Huebner 1819 and *Argina* Gray 1840. Type species: *Argina nubilipennis* Forsius. Orig. desig.

Arginella Forsius 1925b: 107. New name for *Argina* Forsius.

These are small sawflies, seldom more than 5 mm long, and are distinguished by the basal lobe of the tarsal claw, lack of a preapical spine on the hindtibia, lack of an anal cell in the hindwing, presence of an intercostal crossvein in the forewing, three-toothed mandibles, and the simple antennal flagellum in the male. The female sheaths are all slender and simple, without scopae, similar to Figs. 627-629. Other characters are in the subfamily description. All species are

black or black with various reddish markings on the thorax.

Atomacera is found from southeastern Canada to northern Argentina. Only two species are found in eastern North America, *A. debilis* Say which feeds on *Desmodium* spp. and *A. decepta* Rohwer which feeds on *Hibiscus* spp. (Smith, 1979).

Malaise (1942) gave a key to species, but there are considerable additions. Many species are similar in coloration but differ in female lancet and male genitalia characters, consequently reliable species determination is by examination of the lancet and male genitalia. Though the male genitalia appear to have good specific

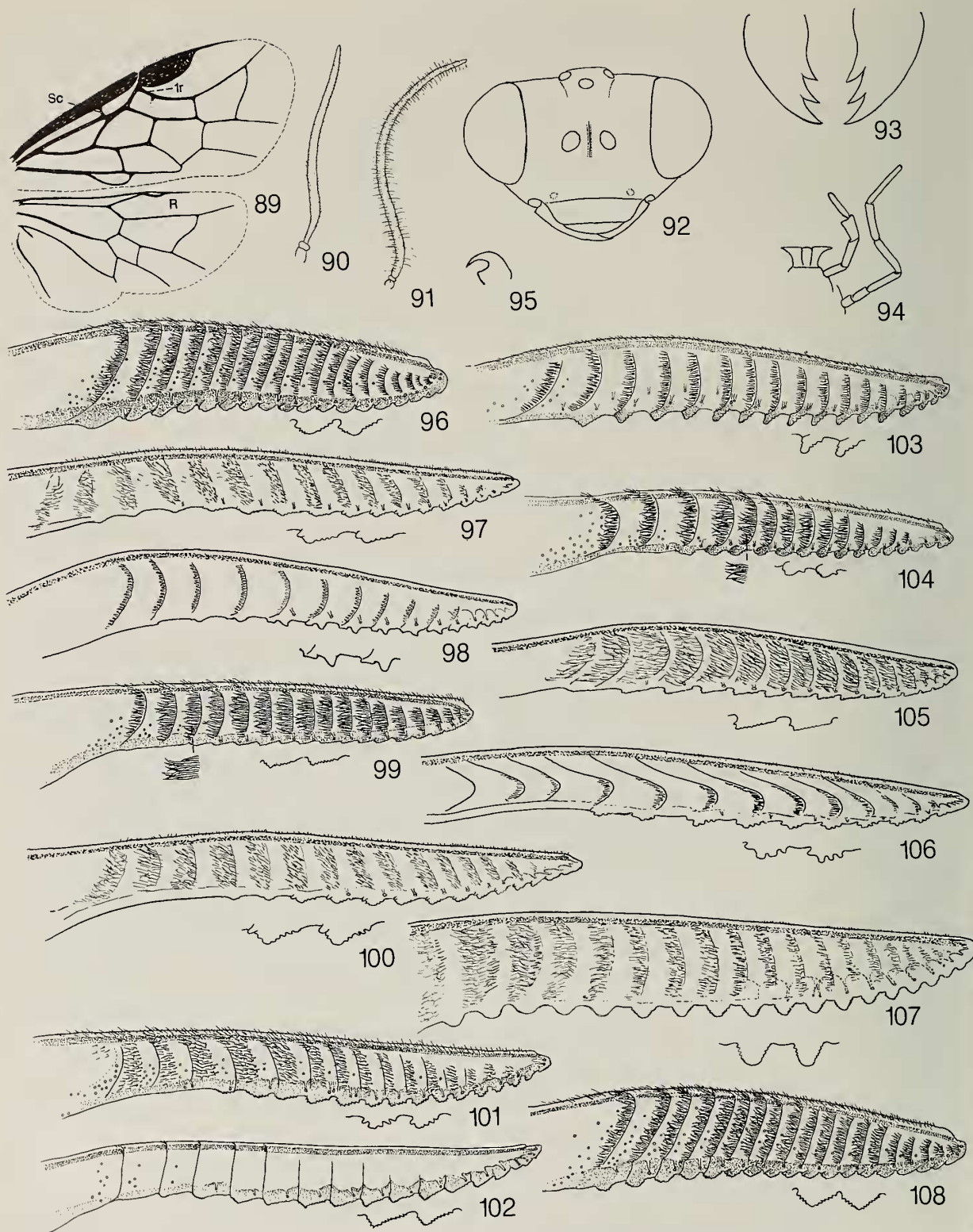
characters, very few have been associated with females and many unassociated specimens may not be accurately identified in the following key. Because of color variation, mostly the amount of red on the thorax, some species are keyed in several places. The lancet should always be examined and compared with the illustrations when keying specimens since possible unknown color variations may lead to erroneous identification. Some groups appear to be complexes for which more material is needed to determine if several or only one variable species exists. This is especially true for *pubicornis* and *ebena*.

KEY TO SPECIES

Atomacera caerulea (Cameron) from Panama is not included. It is all black and would go to couplet 27, but the lancet was not examined.

1. Head, thorax, and legs black; abdomen reddish with sheath black (antenna longer than head width; interantennal crest rounded) *rufiventris* (Cameron)
- Entirely black or black with parts of thorax reddish 2
2. Thorax all or partly reddish, red usually on one or more of following: pronotum, mesonotum, mesopleuron, tegula; legs black or tibiae partly whitish 3
- Entirely black, some species with tibiae all or in part whitish 23
3. Mesopleuron reddish 4
- Mesopleuron black, only pronotum and/or mesonotum reddish 6
4. Mesosternum black, legs black (pronotum, cervical sclerites, tegula, mesonotum except sometimes blackish marks on prescutum, and sometimes mesoscutellum reddish; antennal length subequal to head width; interantennal carina present, extending half way down supraclypeal area; lancet as in Fig. 96) *plumanni* Malaise
- Mesosternum red; legs black or foreleg partly reddish 5
5. Forecoxa, trochanters, and femora reddish; northern Argentina *ovata* (Jørgensen)
- Forecoxa, trochanters, and femora black; Panama (lancet as in Fig. 97) *comana*, new species (in part)
6. Pronotum and sometimes tegula black, reddish marks on thorax confined to lobe(s) of mesonotum 7
- Pronotum all or in part and tegula reddish, mesonotum all or partly reddish 10
7. Antennal length subequal to head width; lancet as in Fig. 98, serrulae broad, concave at apex appearing to have two large teeth (tegula and mesoprescutum black) *romani* Malaise
- Antennal length about 1 1/3X head width; serrulae of lancet flat or rounded, but with distinct subbasal teeth (Figs. 99-101) 8
8. Serrulae of lancet flat, subbasal teeth fine (Fig. 99) (tegula black; mesoprescutum and mesoscutellum black). *serrata*, new species
- Serrulae of lancet deeper, rounded, subbasal teeth coarser (Figs. 100, 101) 9
9. Lancet as in Fig. 100; mesonotum reddish *lepidula* (Konow)
- Lancet as in Fig. 101; mesonotum usually with prescutum and scutellum black (male genitalia as in Fig. 127) *pubicornis* (Fabricius)
10. Tibiae white, extreme apices may be blackish (lancet as in Fig. 102, annuli lacking hairs or spines; pronotum, tegula, and mesonotum usually entirely reddish; male genitalia as in Fig. 122; possibly a complex of several species) *ebena* Smith (in part)
- Tibiae black, foretibia may be partly whitish 11

11. Most of pronotum, tegula, and sometimes adjacent parts of mesonotal lateral lobes reddish, most of mesonotum black 12
- Pronotum, tegula, and mesonotum reddish, prescutum and/or scutellum may be black 15
12. About lateral half of mesonotal lateral lobes and cervical sclerites red; lancet as in Fig. 103, with serrulae deep and rounded at apices (antennal length about 1 1/2X head width) *malleri* Malaise
- Most of mesonotal lateral lobes, except sometimes extreme lateral corners, and cervical sclerites black; lancet as in Figs. 104-106, with serrulae low and rounded or truncated at apices 13
13. Serrulae of lancet rounded at apices, with few distinct subbasal teeth, and annuli straighter (Fig. 104) *humeralis* Malaise
- Serrulae of lancet flat at apices, with several large or small subbasal teeth; annuli sharply curved or straight (Figs. 105, 106) 14
14. Lancet as in Fig. 105, subbasal teeth of serrulae fine, annuli straight, with long annular hairs ... *heda*, new species
- Lancet as in Fig. 106, subbasal teeth of serrulae coarse, annuli sharply curved, with short annular hairs (male genitalia as in Fig. 130) *diasi*, new species
15. Mesoprescutum and mesoscutellum black or only mesoprescutum black 16
- Mesonotum red, if black present then only on part of mesoscutellum 19
16. Mesoprescutum black, mesoscutellum red; pronotum black with posterolateral margins broadly orange (lancet as in Fig. 107, with large, deep, lobelike serrulae) *lobula*, new species
- Mesoprescutum and mesoscutellum black; pronotum red 17
17. Cervical sclerites red (lancet as in Fig. 108) *triangulata* Malaise
- Cervical sclerites black 18
18. Serrulae of lancet low and flat, annular hairs long (Fig. 109) *flava*, new species
- Serrulae of lancet deeper and more pointed at apices, annular hairs short (Fig. 110) *hallex* (Konow)
19. Serrulae of lancet deep, narrowly or broadly rounded at apices and annuli relatively straight (Figs. 111, 112) .. 20
- Serrulae of lancet lower or pointed at apices, annuli straight or markedly curved (Figs. 97, 113, 114). 21
20. Serrulae narrowly rounded at apices, about as far apart as width of one (Fig. 111) (male genitalia as in Fig. 123) *zonia*, new species
- Serrulae broadly rounded at apices, closer together than breadth of one (Fig. 112) *raza*, new species
21. Serrulae of lancet flat, each with 4 large posterior subbasal teeth, annular hairs short (Fig. 113) (forewing with 4 cubital cells) *nama*, new species
- Serrulae of lancet pointed or rounded at apices, usually with one or more anterior subbasal teeth and posterior subbasal teeth finer, annular hairs longer (Figs. 97, 114) 22
22. Lancet as in Fig. 97, annuli straight; forewing with 4 cubital cells (veins 1m-cu and Rs of forewing interstitial) *comana*, new species (in part)
- Lancet as in Fig. 114, annuli on basal half curved; forewing usually with 3 cubital cells (male genitalia as in Fig. 128) *tria*, new species
23. Interantennal carina sharp, extending to clypeal suture and sometimes slightly onto clypeus (lancet as in Fig. 115; male genitalia as in Fig. 126) *coerulescens* Malaise
- Interantennal carina shorter, not extending onto supraclypeal area, or absent 24
24. Second and 3rd cubital crossveins subparallel, the later almost straight, the last closed cubital cell therefore quadrate, about as long on radius as on cubitus (male genitalia as in Fig. 129) *recta* (Enderlein)
- Third cubital crossvein curved, 2nd and 3rd not subparallel but divergent, the last closed cubital cell much longer on radius than on cubitus (Fig. 89) 25
25. Tibiae whitish 26
- Tibiae black, foretibia may be white 27
26. Antennal length longer than head width; trochanters black (lancet as in Fig. 102) *ebena* Smith (in part)
- Antennal length subequal to head width; trochanters whitish *crassitarsus* (Cameron)
27. Lancet short, with 10 or fewer serrulae (Figs. 116-118) (interantennal area rounded, no carina) 28
- Lancet longer, with 12 or more serrulae (Figs. 119-121) 30



Figs. 89-108. *Atomacera*. 89, Forewing and hindwing of *A. ebena*. 90, Female antenna of *A. ebena*. 91, Male antenna of *A. ebena*. 92, Front view of head of *A. ebena*. 93, Mandibles of *A. ebena*. 94, Palpi of *A. ebena*. 95, Tarsal claw of *A. ebena*. Lancets of 96, *A. plaumanni*; 97, *A. comana*; 98, *A. romani*; 99, *A. serrata*; 100, *A. lepidula*; 101, *A. pubicornis*; 102, *A. ebena*; 103, *A. malleri*; 104, *A. humeralis*; 105, *A. heda*; 106, *A. diasi*; 107, *A. lobula*; 108, *A. triangulata*.

28. Antennal length slightly less than head width; lancet as in Fig. 116, serrulae flat apically, each with one large anterior and 2 large posterior subbasal teeth *mina*, new species
 — Antennal length longer than head width; lancet as in Figs. 117, 118, serrulae without distinct posterior subbasal teeth **29**
29. Lancet as in Fig. 117, annular spines present, serrulae appear broad and concave at apices *petroa*, new species
 — Lancet as in Fig. 118, annular hairs present, serrulae narrow *truculenta* (Konow)
30. Serrulae of lancet large, lobelike, close together, annular hairs long (Fig. 119); short interantennal carina present (male genitalia as in Fig. 125) *melini* (Malaise)
 — Serrulae of lancet flat or pointed at apices, usually farther apart, annular hairs short (Figs. 120, 121); interantennal area rounded **31**
31. Serrulae of lancet flat, truncate at apices, each without anterior and with 4 or 5 large posterior subbasal teeth (Fig. 120) (male genitalia as in Fig. 124) *ginga* Smith
 — Serrulae of lancet flat or pointed at apices, with fine anterior and posterior subbasal teeth (Fig. 121) **32**
32. Apex of forefemur and foretibia whitish; 3.5 mm long; interantennal area rounded; without supraclypeal furrow (lancet as in Fig. 121) *pumila* Malaise
 — Foreleg black; 3.5-4.5 mm long; small rounded tubercle on interantennal area; supraclypeal furrow distinct *lopesi* Malaise

SPECIES

caerulea (Cameron), **new combination** — Panama

**Sericocera caerulea* Cameron 1883: 49. F. "Panama, Volcan de Chiriqui 3000 to 4000 feet" (London, F).— Dalla Torre 1894: 310.

Sericoceros coeruleus (!): Konow 1905a: 28.

The holotype is BM #1.126. The lancet was not examined. It is an entirely black species and is not included in the key.

coerulescens Malaise — Brazil (Santa Catarina, São Paulo)

**Atomacera coerulescens* Malaise 1942: 109. M. "Santa Catharina (Nova Teutonia)" (Stockholm, M).— Malaise 1949: 12 (F).

The holotype is labeled "Rio Grande do Sul, Nova Teutonia, Plaumann." The female is similar in color to the male. I have seen one specimen from São Paulo and additional specimens from Nova Teutonia.

comana Smith, **new species** - Panama

Atomacera comana Smith.

Female.— Length, 5.0 mm. Black; mesosternum, mesopleuron, cervical sclerites, and supraclypeal area reddish or black; pronotum, tegula, and mesonotum red; outer surface of foretibia whitish. Wings moderately infuscated black, lighter toward apices. Antennal

length to head width as 5.7:3.6. Malar space about 1 1/2X diameter of front ocellus; lower interocular distance to eye length as 2.1:1.6; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.5:0.2. Forewing with 4 cubital cells, veins Rs and 1m-cu interstitial. Sheath slender, in lateral view straight above, rounded below. Lancet as in Fig. 97, with annuli straight, serrulae low with one anterior and several posterior subbasal teeth.

Male.— Unknown.

Holotype.— F, "Taboga Isl., Pan., Jun. 12, 11, August Busck" (Washington).

Paratype.— PANAMA: Canal Zone, Barro Colorado, 29-VII-1924, N. Banks (1 F) (Cambridge).

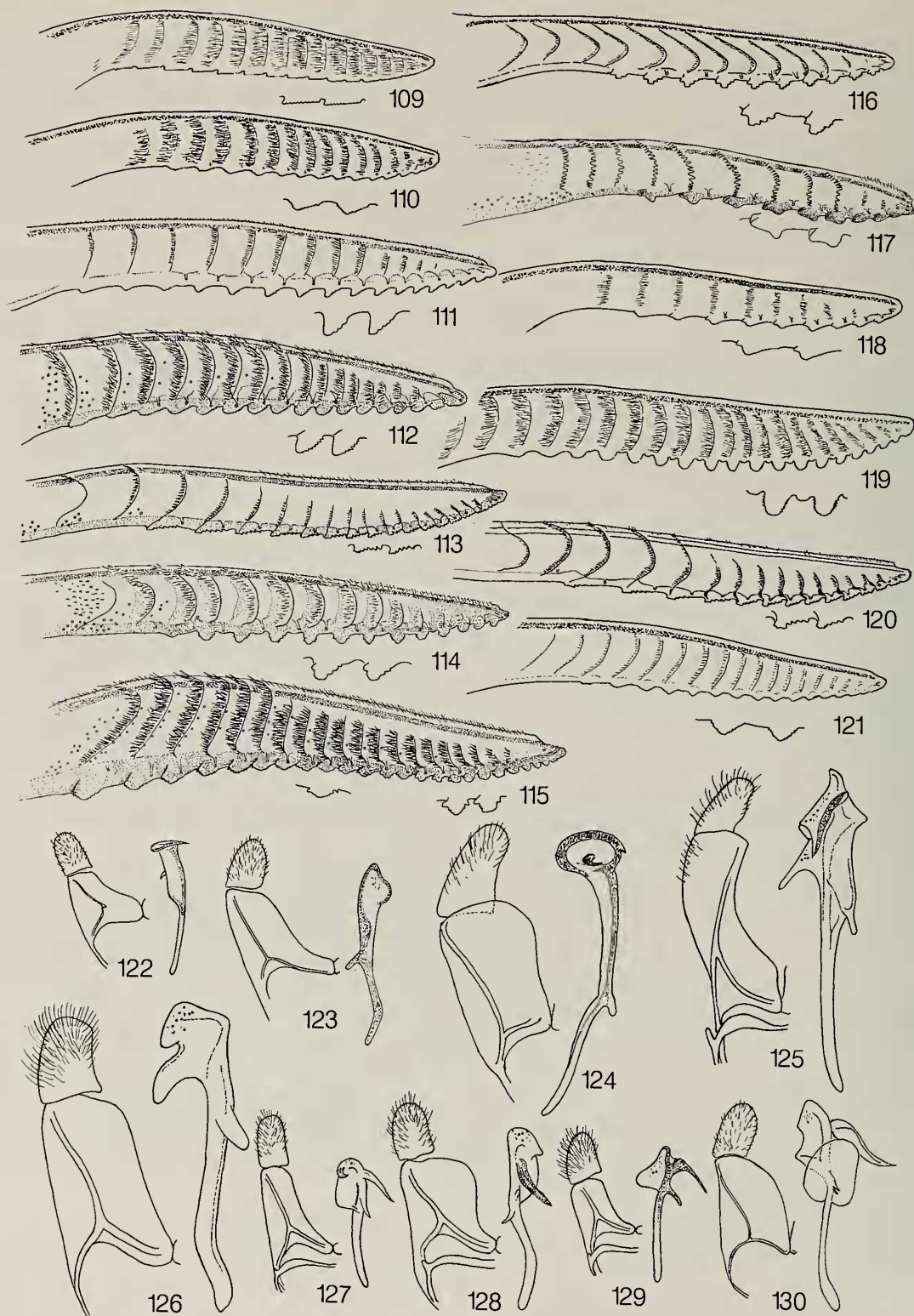
Remarks.— The holotype has the mesosternum, mesopleuron, and cervical sclerites reddish and a pale supraclypeal area. These structures of the paratype are black. The species is distinguished from other species by the red pronotum, tegula, and mesonotum, black legs, straight annuli of the lancet, and the presence of four cubital cells in the forewing with veins Rs and 1m-cu interstitial. In most other species vein Rs is absent (thus with three cubital cells) and vein 1m-cu meets M apical to Rs.

crassitarsis (Cameron), **new combination** — Panama

**Sericocera crassitarsis* Cameron 1883: 50-51. F, M. "Panama, Volcan de Chiriqui 2500 to 4000 feet" (London, F).— Dalla Torre 1894: 310.

Sericoceros crassitarsis: Konow 1905a: 28.

The lectotype, here designated, is the female set



Figs. 109-130. *Atomacera*. Lancets of 109, *A. flava*; 110, *A. hallex*; 111, *A. zonia*; 112, *A. raza*; 113, *A. nama*; 114, *A. tria*; 115, *A. coerulescens*; 116, *A. mina*; 117, *A. petroa*; 118, *A. truculenta*; 119, *A. melini*; 120, *A. ginga*; 121, *A. pumila*. Male genitalia of 122, *A. ebena*; 123, *A. zonia*; 124, *A. ginga*; 125, *A. melini*; 126, *A. coerulescens*; 127, *A. pubicornis*; 128, *A. tria*; 129, *A. recta*; 130, *A. diasi*.

aside as BM# 1.125, labeled "B.C.A. Hymen. I. *Sericocera crassitarsis* Cam.," "V. de Chiriqui, 25-4000 ft., Champion."

diasi Smith, new species — Brazil (D.F.)

Atomacera diasi Smith.

Female.— Length, 3.0-3.5 mm. Black; pronotum and tegula red, sometimes lateral corner of mesonotal lateral lobes adjacent to tegula reddish; supraclypeal area and clypeus sometimes brownish; outer surface of apex of forefemur and foretibia whitish. Wings moderately black infuscated, apex beyond stigma of forewing more hyaline. Antennal length to head width as 4.2:3.6. Lower interocular distance to eye length as 2.0:1.6; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.6:0.3. Forewing usually with 3 cubital cells. Sheath slender, in lateral view straight above, rounded below. Lancet as in Fig. 106, with serrulae flat at apices, each with 1 large anterior and 3 or 4 large posterior subbasal teeth; annuli markedly curved.

Male.— Length, 3.0-3.5 mm. Coloration and structure similar to those of female; antennal length to head width as 6.0:3.3. Genitalia as in Fig. 130.

Holotype.— E, "Res. Ecol. IBGE, Km 0 BR 251 - DF, 14-21/III/1980, T. Malaise 5:C.sujo," "Brasilia, D.F., Col. Braulio Dias." (Brasilia, IBGE).

Paratypes.— BRAZIL: Same locality as for holotype, 16-23-X-81, 3A-76-1 m (1 E); 18-25-III-82, 3A-98-2 m (1 E); 18-25-II-82, 3A-94-5 m (1 E); 4-11-III-82, 3A-96-4 m (2 E, 1 M); 1-7-IV-82, 3A-100-5 m (1 M); 9-II-1979, Tenda Malaise, Campo Sujo, 2A-1-4 (1 M); 29-X-5-XI-81, 3A-78-5 m (1 M). (Brasilia, IBGE; Washington).

Remarks.— The coloration of this species is similar to that of *malleri* and *humeralis*, but the lancet is very different (compare Figs. 103, 104, 106) in that the serrulae are truncated and with coarse subbasal teeth and the annuli are markedly curved.

The species is named for Braulio F. S. Dias, who has helped considerably in my studies.

ebena Smith, complex — Costa Rica; Mexico (Colima, Guerrero, Jalisco, Morelos, Nayarit, San Luis Potosi, Sonora, Veracruz, Yucatán); USA (Arizona)

**Atomacera ebena* Smith 1969b: 445-446, fig. 8, 22. E. "Ramsey Canyon, Huachuca Mts., Arizona" (Washington, E).— Smith 1979: 22.

I have seen a number of specimens from scattered localities from southern Arizona to Costa Rica that have the tibiae white and the thorax either black or with the pronotum and mesonotum red. All have lancets similar to Fig. 102, with the annuli lacking hairs or spines and the serrulae similar but with various degrees of depth. The male genitalia are similar to Fig. 122. There may be more than one species involved here, but series are needed from various parts of its range to determine the value of the slight differences noted. At present, all specimens with white tibiae and lancet and male genitalia similar to the figures are grouped here.

flava Smith, new species — Brazil (D.F.)

Atomacera flava Smith.

Female.— Length, 3.5 mm. Black with pronotum, tegula, and mesonotum except for most of prescutum and scutellum red; outer surface of foretibia whitish. Wings moderately infuscated black, more hyaline toward apices. Antennal length to head width as 4.1:3.1. Lower interocular distance to eye length as 1.8:1.3; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.6:0.3; malar space 2X diameter of front ocellus. Forewing with 4 cubital cells. Sheath slender, in lateral view straight above, rounded below. Lancet as in Fig. 109, serrulae serrate, with no anterior and 7-9 fine posterior subbasal teeth; annular hairs long.

Male.— Unknown.

Holotype.— E, "Res. Ecol. IBGE, Km 0 BR 251 - DF, 19 a 26-XI-81, 3A-81-5 J" (Brasilia, IBGE).

Paratype.— BRAZIL: Same data as for holotype except 16-22/XI/1979, T. Malaise 6: Mata (1 E) (Brasilia, IBGE).

Remarks.— The lancet is similar to *serrata* and *heda*, all three species having low serrulae and long annular hairs. The lack of anterior subbasal teeth on the serrulae, red pronotum and tegulae, and red mesonotum with the prescutum and scutellum mostly black are diagnostic for *flava*.

ginga Smith — Brazil (D.F., São Paulo)

**Atomacera ginga* Smith 1981: 283, fig. 16-18. E, M. "Res. Ecol. IBGE, Km 0 BR 251 - DF" (Brasilia, IBGE, E).

hallex (Konow) — Bolivia; Peru ?

**Braunsiola hallex* Konow 1908a: 144-145. F. "Brasilia (Iquitos)" (Eberswalde, F).— Oehlke and Wudowenz 1984: 386 (holotype).

Atomacera hallex: Malaise 1942: 108 ("Upper or Peruvian Amazonas (Iquitos))"

I have seen one specimen from Bolivia, but the province name is not legible. Malaise questioned the type locality. It is probably Iquitos in Peru.

heda Smith, new species — Brazil (São Paulo)

Atomacera heda Smith.

Female.—Length, 3.5 mm. Black; pronotum orange, tegula dark orange; outer surface of apex of forefemur, foretibia, trochanters, and very narrow bands at extreme apices of mid- and hindfemora and extreme bases of mid- and hindtibiae whitish. Wings moderately black infuscated, more hyaline toward apices; veins and stigma black. Antennal length to head width as 3.7:3.2. Lower interocular distance to eye length as 1.7:1.4; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.6:0.2. Forewing with 3 cubital cells. Sheath slender, in lateral view straight above, rounded below. Lancet as in Fig. 105, with long annular spines; serrulae low, each with one prominent anterior subbasal tooth and 7-9 posterior subbasal teeth.

Male.— Unknown.

Holotype.— F, "Sto. André, S. Paulo, II-1962, L. Stowannencko" (São Paulo).

Remarks.— The lancet is similar to that of *serrata*, but *serrata* has the pronotum and tegulae black, the mesonotal lateral lobes red, and has no anterior subbasal teeth on the serrulae of the lancet.

humeralis Malaise — Brazil (Santa Catarina)

**Atomacera humeralis* Malaise 1942: 108. F. "Santa Catharina (Nova Teutonia)" (Stockholm, F).

I have examined additional specimens from the type locality.

lepidula (Konow) — Costa Rica; Guatemala; Mexico (Chiapas, Tabasco, Veracruz); Panama.

**Braunsiola lepidula* Konow 1908a: 144. M. "Costa Rica (Belize)" (Eberswalde, M).— Oehlke and Wudowenz 1984: 392 (holotype).

Atomacera lepidula: Malaise 1942: 109.

I have examined specimens from all of the above localities.

lobula Smith, new species - Ecuador

Atomacera lobula Smith.

Female.—Length, 5.0 mm. Black with posterolateral corners of pronotum broadly, tegula, and mesonotum except for most of prescutum red. Wings moderately black infuscated, somewhat paler toward apices. Antennal length to head width as 5.5:4.3. Lower interocular distance to eye length as 2.1:2.0; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.7:0.3; malar space about 1 1/2X diameter of front ocellus. Forewing with 4 cubital cells. Sheath slender, in lateral view straight above, rounded below. Lancet as in Fig. 107, with large, lobelike serrulae very close together.

Male.— Unknown.

Holotype.— F, "Ecuador, Napo, Limoncocha, 250 m, 15-28.VI.1976, S. & J. Peck" (Ottawa).

Remarks.— Diagnostic features for *lobula* are the large serrulae of the lancet, red mesonotum with most of the prescutum black except for the posterior corner, red tegula, and the red lateral angles of the pronotum.

lopesi Malaise — Brazil (Rio de Janeiro)

**Atomacera lopesi* Malaise 1949: 11-12. F, M. "Brazil (Rio de Janeiro, Grajahu)" (Stockholm, F).

malleri Malaise — Brazil (Santa Catarina)

**Atomacera malleri* Malaise 1942: 108. F. "Santa Catharina (The Mafra Highland at 800 m.)" (Stockholm, F).

I have seen additional specimens from Nova Teutonia, Santa Catarina.

melini Malaise — Argentina (Jujuy, Salta, Tucumán); Peru

**Atomacera melini* Malaise 1942: 110. E. "Peru (Roque, 45 km. SSE of Moyobamba, 1000 m.)" (Stockholm, E).

I have examined specimens from each of the above localities.

mina Smith, new species - Venezuela

Atomacera mina Smith.

Female.—Length, 3.3 mm. Entirely black. Wings very lightly infuscated black, nearly hyaline toward apices; veins and stigma black. Antennal length to head width as 2.6:2.9. Malar space about 2X diameter of front ocellus; lower interocular distance to eye length as 1.5:1.2; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.4:0.4:0.2. Forewing with 3 cubital cells. Sheath slender, in lateral view straight above, rounded below. Lancet as in Fig. 116, with 10 serrulae, each truncate at apex and with 1 large anterior and 2 large posterior subbasal teeth; annular hairs present.

Male.—Unknown.

Holotype.—E, "swept, San Esteban, Venez., X-39, P. Anduze" (Washington).

Remarks.—The entirely black coloration, small size, antennal length shorter than head width, and lancet (Fig. 116) distinguish this species from congeners.

nama Smith, new species - Panama

Atomacera nama Smith.

Female.—Length, 4.0 mm. Black; pronotum, tegula, mesonotum, and metascutellum red. Wings moderately infuscated black, lighter toward apices; veins and stigma black. Antennal length to head width as 4.4:3.6. Malar space about 1.5x diameter of front ocellus; lower interocular distance to eye length as 2.2:1.8; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.5:0.5:0.3. Forewing with 4 cubital cells. Sheath slender, in lateral view straight above, rounded below. Lancet as in Fig. 113, with serrulae flat, each with 4 large posterior subbasal teeth, annular hairs very short.

Male.—Unknown.

Holotype.—E, "Chorrera, Panama, VIII-30-1946," "N.L.H. Krauss" (Washington).

Remarks.—The lancet (Fig. 113) is distinctive for this species, having very short annular hairs and flat serrulae with large posterior subbasal teeth.

ovata (Jörgensen) — Argentina (Misiones)

**Spagazziniella ovata* Jörgensen 1913: 260-261, fig. 3. E. "Monte de Bonpland" (La Plata, E).
Atomacera ovata: Malaise 1942: 108.

Jörgensen stated that he saw one female, and the holotype is the only specimen I examined.

petroa Smith, new species — Brazil (Rio de Janeiro)

Atomacera petroa Smith.

Female.—Length, 5.0 mm. Entirely black. Wings moderately infuscated black, slightly lighter toward apices. Antennal length to head width as 4.8:3.9. Malar space about 2X diameter of front ocellus; lower interocular distance to eye length as 2.0:1.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.6:0.2. Forewing with 3 cubital cells. Sheath slender, in lateral view straight above, rounded below. Lancet as in Fig. 117, with short annular spines, with 10 serrulae, each serrula broad and concave, appearing to have a large anterior and a large posterior tooth.

Male.—Unknown.

Holotype.—E, "Brasil, Petropolis, Dec. 1970, J. Maldonado C." (Washington).

Remarks.—The black coloration and unusual lancet (Fig. 117) are diagnostic for *petroa*.

plaumanni Malaise — Brazil (Santa Catarina)

**Atomacera plaumanni* Malaise 1942: 108. E. "Santa Catharina (Nova Teutonia)" (Stockholm, E).

I have seen additional specimens from the type locality.

pubicornis (Fabricius) — Bolivia; Brazil (Acre, Amazonas, Mato Grosso, Pará); Colombia; Ecuador; Guyana; Peru; Surinam; Trinidad and Tobago; Venezuela

Hylotoma pubicornis Fabricius 1804: 21. E, M. "Habitat in America meridionali" (Coll. Fabricius, ?).—Klug 1814: 300.—Klug 1819: 68, pl. 2, fig. 2.—Kriechbaumer 1884: 66.

Ptilia pubicornis: Lepelletier 1823: 50.—Norton 1867: 62.

Sericocera pubicornis: Kirby 1882: 34.—Dalla Torre 1894: 310.

Sericoceros pubicornis: Konow 1905a: 28.

Atomacera pubicornis: Malaise 1937b: 65 (types, E & M in Coll. Fabricius).—Malaise 1942: 109 (Guyana, Amazonas; syn.: *duckei* Konow, *nubilipennis* Forsius).

**Braunsiola duckei* Konow 1906b: 181-182. E, M.
"Brasilia" (Eberswalde, E).— Oehlke and Wudowenz
1984: 378 (1 E, 1 M syntypes at Eberswalde).

**Argina nubilipennis* Forsius 1925a: 3-4. E. "Rio Branco,
Amazonas" (Stockholm, E).

Atomacera sp.: Mc Callan 1953: 126 (Trinidad; reared
from host a; parasite, *Mesochorus* sp.).

Hosts: a) *Ipomoea* sp.; b) a specimen from Ven-
ezuela bears the data "Pasando malla."

Two specimens, a male and female, both labeled
types of *B. duckei* are at Eberswalde. The female la-
beled "Teffé, 22.6.1906, Ducke" is hereby designated
lectotype. The male labeled "Teffé, 26.9.1904, Ducke"
is a paralectotype.

Maxwell (1955) described the internal larval
anatomy of an "*Atomacera* sp." from Trinidad and gave
"*Brasso ipomoea*" as host. Her description may pertain
to *pubicornis*. I have seen specimens from all of the
above localities. It is a relatively common species in
northern South America. I have examined specimens
recorded as *Atomacera* sp. by Mc Callan (1953) and
confirm their identity as this species.

pumila Malaise — Brazil (Santa Catarina)

**Atomacera pumila* Malaise 1942: 110. E. "Santa
Catharina (Nova Teutonia)" (Stockholm, E).

raza Smith, new species — Costa Rica; Mexico
(Vera Cruz)

Atomacera raza Smith.

Female.— Length, 4.5 mm. Black; pronotum and
tegula red, mesonotum red with scutellum partly or
mostly black; outer surface of foretibia whitish. Wings
moderately, uniformly infuscated black; slightly lighter
toward apices. Antennal length to head width as 5.0:3.5.
Malar space about 1 1/2X diameter of front ocellus;
lower interocular distance to eye length as 2.1:1.6;
distances between eye and hindocellus, hindocelli, and
hindocelli and posterior margin of head as 0.6:0.6:0.3.
Forewing with 4 cubital cells. Sheath slender, in lateral
view straight above, rounded below. Lancet as in Fig.
112, serrulae deep, broadly rounded at apices, close
together.

Male.— Unknown.

Holotype.— E, "MEXVC 1959, Vera Cruz,
NLKrauss vii" (Washington).

Paratype.— COSTA RICA: Escazu, May 26, 1967,
H. & M. Townes (1 E) (Townes Coll.).

Remarks.— The black legs, red pronotum, tegula,
and mesonotum with the scutellum mostly black, and
the large, deep serrulae of the lancet are diagnostic
features for this species.

recta (Enderlein) — Brazil (Santa Catarina)

**Braunsiola recta* Enderlein 1919: 117. "E" = M.

"Südbrasilien. Santa Catharina" (Warszawa, M).

Atomacera recta: Malaise 1942: 110.

Enderlein described this species from "2 E." The
specimen I saw was a male, labeled "S. Catharina,
Lüderwaldt S.," "TYPE," "*Braunsiola recta* Enderl.,
type M, Dr. Enderlein det 1918." This specimen is
hereby designated lectotype.

The last closed cubital cell of the forewing is quad-
rate, about as long on the radius as on the cubitus. In all
other *Atomacera* species, this cell is much longer on the
radius. I have examined several specimens from Nova
Teutonia, Santa Catarina.

romani Malaise — Brazil (Amazonas); Surinam;
Venezuela

**Atomacera romani* Malaise 1942: 109. E. "N. Amazonas
(Rio Uaupés, Taracua)" (Stockholm, E).

I have seen specimens from Surinam and Cerro de
la Neblina, Venezuela.

rufiventris (Cameron), new combination — Panama

**Sericocera rufiventris* Cameron 1883: 49. E. "Panama,
Volcan de Chiriqui 2000 to 3000 feet" (London, E).—
Dalla Torre 1894: 310.

Sericoceros rufiventris: Konow 1905a: 28.

The holotype is BM #1.127. The coloration of this
species, black with an orange abdomen, is most un-
usual for *Atomacera*. I did not see specimens other than
the holotype and did not examine the lancet. Because of
its unusual color, it is taken out in the first couplet of the
key.

serrata Smith, new species — Brazil (Santa Catarina)

Atomacera serrata Smith.

Female.— Length, 4.5-5.0 mm. Black; mesonotal
lateral lobes red. Wings moderately black infuscated,
paler at apices; veins and stigma black. Antennal length
to head width as 4.5:3.8. Malar space 1 1/2X diameter
of front ocellus; lower interocular distance to eye

length as 2.0:1.7; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.6:0.3. Forewing with 4 cubital cells. Sheath slender; in lateral view straight above and rounded below. Lancet as in Fig. 99; serrulae flat, annular spines long, nearly equal to width of segments.

Male.—Unknown.

Holotype.—E, "Brasilien, Nova Teutonia, 27° 11' B, 52° 23' L, 300-500 m, 7-X-1949, Fritz Plaumann" (Washington).

Paratype.—BRAZIL: Same locality as for holotype, 20.IX.1938 (1 E). (London).

Remarks.—This is distinguished from other species by the red mesonotal lateral lobes and the low serrate serrulae and long annular spines of the lancet.

tria Smith, new species — Costa Rica; Guatemala; Honduras; Mexico (Chiapas, Jalisco, Morelos, Oaxaca, Puebla, Veracruz); Panama

Atomacera tria Smith.

Female.—Length, 3.8-4.5 mm. Black; pronotum, tegula, and mesonotum red, sometimes black spot on mesoscutellum and sometimes supraclypeal area brownish; outer surface of foretibia whitish. Wings moderately black infuscated, lighter toward apices. Antennal length to head width as 4.0:3.4. Malar space about 2X diameter of front ocellus; lower interocular distance to eye length as 1.7:1.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.6:0.3. Forewing usually with 3 cubital cells. Sheath slender, in lateral view straight above and rounded below. Lancet as in Fig. 114, with annuli on basal half curved, serrulae usually pointed at apices, each with 2 or 3 anterior and 3 to 5 fine posterior subbasal teeth.

Male.—Length, 3.5-4.0 mm. Color and structure similar to that of female, sometimes thorax black; antennal length to head width as 4.2:3.2. Genitalia as in Fig. 128.

Holotype.—E, "Escuintla, Chiapas [Mexico], Crawford" (Washington).

Paratypes.—COSTA RICA: S. Rosa Park., Guan., 1 Dec. 77, Dry Hill, D. H. Janzen (1 E). GUATEMALA: Escuintla, viii-1959, NLH Krauss (1 E); San Jose, V-16-51, E. S. Ross (1 E). HONDURAS: 16 km N. Siguatepeque, VI-14-1979, W.W. Middlekauff (1 E). MEXICO: Same data as for holotype (2 E); Tapachula, Chiapas, Crawford (1 E); Jalapa, Crawford (1 E, 3 M); Oaxaca, Crawford (1 E); Morelos, nr. Xochitepec, Rt. 95, km. 91, Aug. 1, 1965, O.S. Flint (1 E); Melanque, 11 km N Jalisco, 28-VII-1984, J.T.

Doyen (2 E); Puebla, 13.3 mi. ne. Tehuiztingo, July 13-14, 1974, Clark, Murray, Ashe, Schaffner (1 E); Veracruz, Temascal, July 19, 1980, Schaffner, Weaver, Friedlander (1 E); Oaxaca, 5 miles south Candelaria Loxicha, July 18-19, 1974, Clark, Murray, Ashe, Schaffner (1 E). PANAMA: Canal Zone, Summit, XI-1965, NLH Krauss (1 E); Limon Plantation, Chagres River, sweepings around cornfield, July 14, 1918, H.F. Dietz & J. Zetek (2 E); Barro Colo. Isld., Canal Zone, XII-25-1928, C. H. Curran (1 E), same, XII-30-1928 (1 E); Canal Zone, Red Tank., 30-VI-1924, N. Banks (1 M); Canal Zone, Ft. Davis, 5-VII-1924, N. Banks (1 E, 1 M); Canal Zone, Las Sabanas, 7-VII-1924, N. Banks (1 E). (Washington, New York, Cambridge, College Station, Berkeley, San Francisco)

Remarks.—The specimens examined from Mexico to Panama are all relatively uniform in appearance though the thorax of the male may be all black. Sometimes there is a blackish mark on the mesoscutellum, and, if present, its size varies. This species is distinguished from other *Atomacera* species by the black legs, red pronotum, tegula, and mesonotum, usual presence of only three cubital cells in the forewing, and the lancet (Fig. 114) which has the basal annuli markedly curved and the serrulae pointed at their apices with fine anterior and posterior subbasal teeth.

triangulata Malaise — Argentina (Entre Rios); Brazil (Santa Catarina)

**Atomacera triangulata* Malaise 1949: 12. E. "Santa Catharina (Nova Teutonia)" (Stockholm, E).

I have seen additional specimens from the type locality.

truculenta (Konow) — Brazil (Rio de Janeiro, São Paulo)

**Braunsiola truculenta* Konow 1899a: 312. E. "Brasilia (Santos)" (Eberswalde, E).—Konow 1905a: 23.—Oehlke and Wudowenz 1984: 417 (holotype).

Atomacera truculenta: Malaise 1942: 109.

I have seen specimens from Mangaratiba, Rio de Janeiro, and Guarujá, Ilha Santo Amaro, São Paulo.

zonía Smith, new species —U.S.A. (Arizona)

Atomacera zonía Smith.

Female.—Length, 3.5 mm. Black; pronotum, tegula, and mesonotum red, mesoscutellum sometimes with black spot anteriorly; labrum and mandibles brownish;

foretibia whitish. Wings moderately infuscated black, lighter toward apices; veins and stigma black. Antennal length to head width as 4.1:3.9. Malar space about 1 1/2X diameter of front ocellus; lower interocular distance to eye length as 1.8:1.6; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.6:0.2. Forewing with 4 cubital cells. Sheath slender, in lateral view straight above, rounded below. Lancet as in Fig. 111, with serrulae deep, narrowly rounded at apices, and as far apart as the width of one.

Male.—Length, 3.0 mm. Color and structure similar to that of female; antennal length to head width as 5.0:3.1. Genitalia as in Fig. 123.

Holotype.— $\bar{E}$, "Portal, Ariz., VIII.28.1974, H. & M. Townes" (Townes Coll.).

Paratypes.—U.S.A.: Same data as for holotype except VIII.25.1974 (1 $\bar{M}$), VIII.16.1974 (1 $\bar{M}$), Sept. 2-12, 1976, J. van der Vecht (1 $\bar{E}$). (Townes Coll.).

Remarks.—This species is distinguished from other *Atomacera* species by the black legs, red pronotum, tegula, and mesonotum, and the deep serrulae of the lancet (Fig. 111). The male is separated from *ebena*, the only other species known from Arizona by the red on the thorax, as in the female, and genitalia (compare Figs. 122, 123).

Subfamily ERIGLENINAE

Erigeninae Benson 1938: 375

Sericocerini Benson 1938: 376 (in part)

Sterictiphorinae Benson 1963: 634 (in part)

Antennal flagellum of male furcate (Fig. 137). Head without sharp carinae and without genal carina; transverse from above, broader than long; antennal insertions near or below level of middle of eyes (Figs. 132, 133, 157, 158). Maxillary palpus 6-segmented, labial palpus 4-segmented; labium 3-lobed (Figs. 135, 146, 162, 163). Each mandible with 3 teeth, 2 teeth, or left mandible with 3 teeth and right mandible with 2 teeth, teeth large and subequal in size (Figs. 134, 161, 191). Pronotum without diagonal furrow. Cervical sclerites pointed or rounded on meson, usually not approximate (Fig. 164). Cenchi closer together than breadth of one. Forewing (Figs. 131, 144, 156) with costal breadth equal to or broader than intercostal area; intercostal crossvein present or absent; radial cell open or closed; 1r joins base of stigma; M meets Sc+R far basal to point where Rs+M meets Sc+R. Hindwing (Figs. 131, 156) with radial cell open. Basal crossvein Cu_1 between M+ Cu_1 and 1A present in forewing and hindwing, only

hindwing, or absent. Tibiae without preapical spines; apical spines of foretibia subequal in length; tarsal claws simple.

This subfamily is characterized by the usually 3- or 2-toothed mandibles (right mandible with two teeth in *Subsymmia*) with the subapical teeth large and subequal in size, the head which is broader than long in both front and dorsal view and lacks carinae, sometimes presence of a basal crossvein (Cu_1) in the fore- and/or hindwing between veins M+ Cu_1 and 1A, lack of preapical tibial spines, simple tarsal claws, and furcate antennal flagellum in the male. The general appearance of the head is very similar in all members of the subfamily. Separation from the Atomacerinae is discussed under that subfamily.

Social habits are more apparent than most other subfamilies, but not as advanced as in the Dielocerinae. Information on biology is scanty, but Martorell (1941) indicated that *Sericoceros krugii* females protect their eggs, and cocoons are formed in masses (see discussion under that species).

Genus ERIGLENUM Konow

Erigenum Konow 1901: 60. Type species: *Erigenum crudum* Konow. Monotypic.

Antenna (Figs. 136, 137) with 1st segment longer than broad, 2nd segment as long as broad, 3rd segment oval to rounded and of uniform thickness; antennal length about 1 1/3X head width or less. Clypeus subtruncate; malar space narrow to linear; interantennal carina low, indiscernable, supraclypeal and interantennal areas slightly convex; eyes small, converging below, lower interocular distance greater than eye length (Fig. 132); maxillary palpus 6-segmented, labial palpus 4-segmented (Fig. 135), 3rd segment of labial palpus and 4th segment of maxillary palpus short and broad, maxillary palpus subequal to eye length; each mandible with 3 sharp teeth on apical half (Fig. 134). Forewing (Fig. 131) with radial cell closed, with accessory vein at apex; with 3 cubital cells, sometimes apparently 4 when 1st cubital crossvein is indistinct; last closed cubital cell longer on radius than on cubitus; basal anal cell absent or weakly indicated; intercostal crossvein usually present but may be weak and difficult to see; crossvein Cu_1 present at base of wing between veins M+ Cu_1 and 1A. Hindwing (Fig. 131) with anal cell present, cell slightly longer than its petiole; crossvein Cu_1 usually present at base of wing between veins M+ Cu_1 and 1A. Hindcoxae contiguous; length of hindbasitarsus subequal to length of following tarsal segments combined; tarsal claws simple.

The female lancets and sheaths are very similar in all species, and the unusual shape of the sheath which is pincer-like in dorsal view (Fig. 138) is characteristic for *Eriglenum*. The crossvein at the base of the wings between veins $M+Cu_1$ and 1A also helps to distinguish *Eriglenum*, but this is also present in some other genera of Erigleninae.

Representatives of *Eriglenum* occur from southern Mexico to northern Argentina. Two species are widespread and show considerable color variation, especially in the amount of red on the thorax. Known hosts are *Machaerium* spp.

KEY TO SPECIES

1. Wings fasciate, hyaline with black at base and apex and along costal margin to stigma or only blackish at apex. **2**
- Wings uniformly blackish infuscated **3**
2. Thorax black; abdomen black with segments 3-6 and part of 7 orange; coxae orange; basal 1/2 of wings hyaline, apical 1/2 mostly blackish infuscated *amabilis* Malaise
- Thorax black with mesonotum except posterior 1/2 of prescutum and parapteron red; abdomen and coxae black; wings hyaline at center, blackish at base extending along costal margin to stigma and at apex (lancet as in Fig. 139) *tristum*, new species
3. Clypeus, scape, pedicel, tegula, and legs black; lancet as in Fig. 141; male genitalia as in Fig. 143 *crudum* Konow
- Clypeus, scape, pedicel, tegula, coxae, trochanters, femora and bases of tibiae white (some males with legs darker, but the coxae and femora are paler than the tibiae and tarsi); lancet as in Fig. 140; male genitalia as in Fig. 142 *humertatum* Konow

SPECIES

amabilis Malaise — Brazil (Espírito Santo)

**Eriglenum amabilis* Malaise 1949: 10-11. E. "Brazil (Espírito Santo, S:ta Tereza)" (Stockholm, E).

In addition to characters in the key: antenna and head black with apical 2 maxillary palpal segments white; legs orange with tibia and tarsi whitish, apical 1/4 of hindtibia black. The basal crossvein Cu_1 between $M+Cu_1$ and 1A is atrophied with only a stub present in the holotype.

crudum Konow — Brazil (Amazonas, D.F.); Costa Rica; Honduras; Mexico (Chiapas)

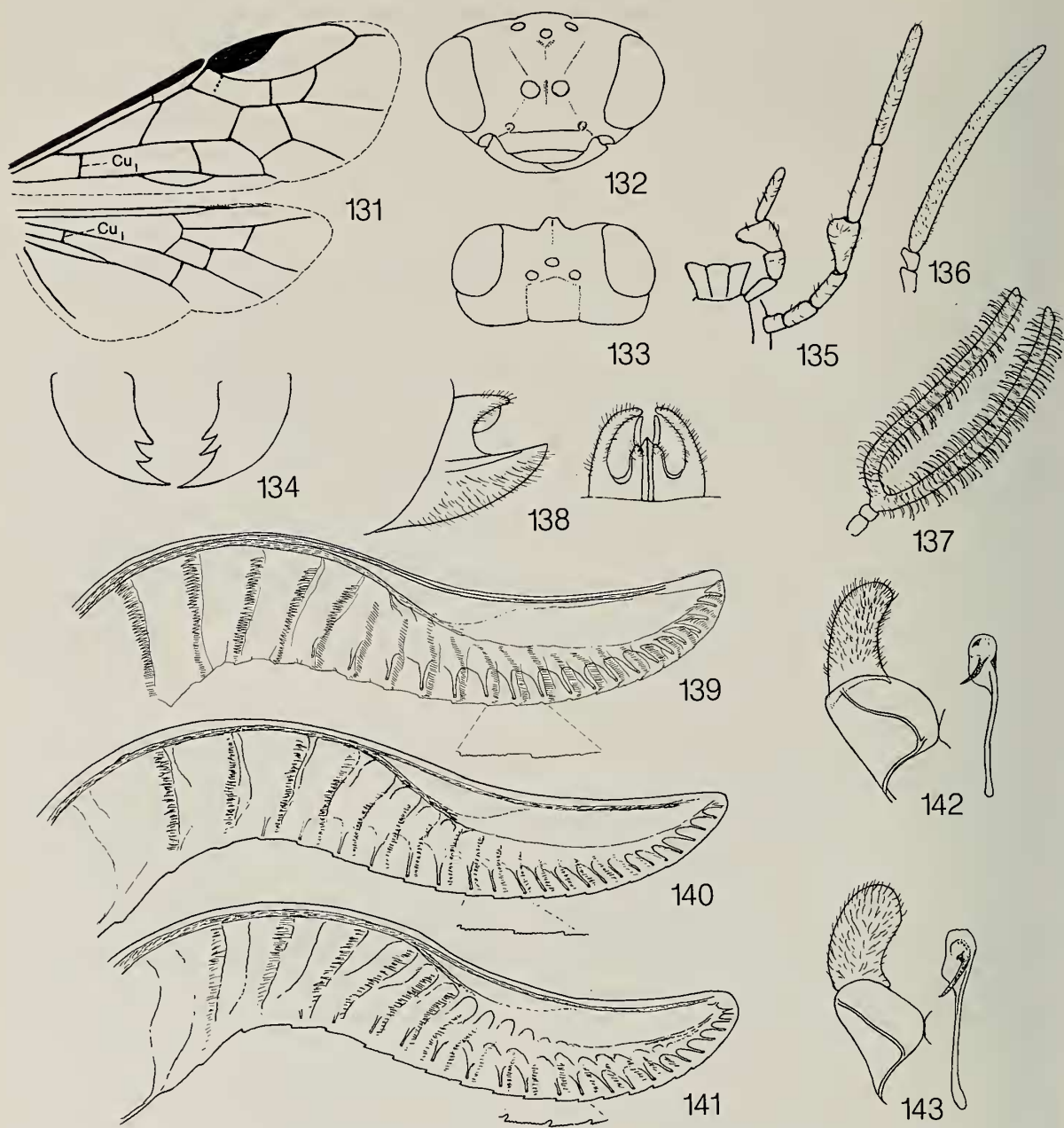
**Eriglenum crudum* Konow 1901: 60-61. E. M. "Brasilia" (Budapest, E).— Konow 1905a: 22.— Malaise 1949: 11.— Oehlke and Wudowenz 1984: 375 (1 E syntype at Eberswalde).

Host: Reared from larvae on *Machaerium biovulatum* (Leguminosae) in Costa Rica (Santa Rosa National Park, Guanacaste Province) by D. H. Janzen.

The lectotype, by present designation, is a female

labeled "Brasilia, Manaos," "Typus 1907 *Eriglenum crudum* Knw." A male, with an additional label "*Eriglenum crudum* n. sp. FM" is a paralectotype. Konow did not mention Manaus in the original description. I did not examine the syntype at Eberswalde. The lectotype has the thorax black with the upper half of the mesepisternum, parapteron, and mesonotum (except anterior half of prescutum) orange. The specimens examined from Mexico (Santo Domingo, 15 mi SE Simojovel, Chiapas), Honduras (El Baqueron, Olancho), and Costa Rica are entirely black. The Mexican record is the northernmost known for *Eriglenum*.

The two species with uniformly black wings, *crudum* and *humertatum* may be a complex of species. I have separated them by the presence or absence of the white on the clypeus, scape, pedicel and legs for lack of apparent morphological features. If morphological characters are present, they are subtle and longer series will be needed for their evaluation. Three series were examined, one each from Paraguay, Brazil (D.F.), and Venezuela. In these the amount of red on the thorax varied considerably, but the white markings appeared constant. I have seen only a few specimens from other scattered localities.



Figs. 131-143. *Eriglenum*. 131, Forewing and hindwing of *E. humeratum*. 132, Front view of head of *E. humeratum*. 133, Dorsal view of head of *E. humeratum*. 134, Mandibles of *E. humeratum*. 135, Palpi of *E. humeratum*. 136, Female antenna of *E. humeratum*. 137, Male antenna of *E. humeratum*. 138, Sheath of *E. humeratum*. Lancets of 139, *E. tristum*; 140, *E. humeratum*; 141, *E. crudum*. Male genitalia of 142, *E. humeratum*; 143, *E. crudum*.

humeraum Konow — Argentina (Misiones); Brazil (D.F., Paraná, Santa Catarina); Paraguay; Peru; Venezuela

**Eriglenum humeraum* Konow 1903: 106-107. F. "Peru (Rio Toro)" (Eberswalde, F).— Konow 1905a: 22.— Oehlke and Wudowenz 1984: 387 (holotype).

**Hemidianeura albocoxa* Rohwer 1911b: 382. F, M. "San Bernardino, Paraguay" (Washington, F).— Malaise 1949: 11 (as syn. of *crudum* Konow). New synonymy.

Host: Associated with a series from San Bernardino, Paraguay, there are a number of leaves with cocoons attached; the label reads "Puppen on *Machaerium* sp." The cocoons are spun singly between the leaves.

Although Malaise treated *albocoxa* as a synonym of *crudum*, definite color differences between the two, as outlined in the key, preclude their conspecificity. I saw two specimens of *humeraum* labeled as paratypes in London; both are from the type locality. The specimen designated as holotype by Oehlke and Wudowenz (1984) should be the lectotype. Specimens from a series from Venezuela (El Limon, AR, 450 m) are each associated with a cocoon attached to a small piece of leaf on each pin. There are no host data. These specimens are mostly black with the scape, pedicel, legs, and tegula white, but one specimen has red on the thorax.

tristum Smith, new species — Costa Rica

Eriglenum tristum Smith.

Female.—Length, 8.0mm. Antenna and head black. Thorax black with mesonotum except for anterior half of prescutum, parapteron, line on upper edge of mesopleuron near parapteron, and upper 1/2 of mesepimeron red. Legs white with coxae except for apical margins, apical 2/3 hindtibia, and apical 2 hindtarsal segments black; midlegs missing. Abdomen black. Forewing hyaline at center, blackish infuscated at base and along costal margin to stigma and at apex beyond stigma; veins and stigma black. Sheath similar to *humeraum*, Fig. 138. Lancet as in Fig. 139.

Male.—Unknown.

Holotype.— E, "Costa Rica: Cartago, Turrialba, 2000', 20 July 1965, H. G. Real," "Herman G. Real Collection" (San Francisco).

Remarks.— The fasciate wings, black abdomen, black head, red mesonotum, and white legs separate *tristum* from other species of *Eriglenum*.

Genus **NEUROGYMNIA** Malaise

Neurogymnia Malaise 1937a: 58. Type species:

Neurogymnia hoffmani Malaise. Orig. desig.

Antenna (Fig. 148) with 1st segment longer than broad, 2nd segment broader than long; flagellum of female antenna tapering to apex, slightly laterally flattened, oval in cross-section, length about 2X head width. Head from above broad, strongly narrowing behind eyes; clypeus truncate; malar space broad, equal to or a little more than diameter of front ocellus; lower interocular distance greater than eye length (Fig. 147); interantennal area flat, rounded, without or with very short carina; palpi long, maxillary palpus longer than eye length, labial palpus 4-segmented, maxillary palpus 6-segmented (Fig. 146), 3rd segment of labial palpus slightly enlarged; each mandible with two sharp teeth and rounded inner ridge (Fig. 145). Forewing (Fig. 144) with intercostal crossvein present, very faint and difficult to see; radial cell with perpendicular crossvein near apex, apex of distal cell usually closed (open in a few specimens); 3 or 4 cubital cells, last closed cell about as long on radius as on cubitus; small basal anal cell present. Hindwing with anal cell present, shorter than its petiole; usually with basal crossvein (Cu_1) present between $M+Cu_1$ and 1A, but sometimes very faint. Hindbasitarsus longer than remaining tarsal segments combined; tarsal claws simple.

The unusual crossvein in the radial cell of the forewing (Fig. 144) is distinctive for this genus. The female sheaths (Fig. 149) of all species are very similar. The lancet is usually long with short segments, the annuli close together and with 28-50 serrulae (Figs. 150-154). The male genitalia are similar to that figured (Fig. 155), though I have seen very few males.

I have seen only a few specimens of this genus, and most species are represented by only several specimens. All specimens are from northern South America (Surinam) to Paraguay, mostly from Brasil. A record from Mexico is questionable (see *fusca*). Hosts are not known.

KEY TO SPECIES

1. Hindtarsus with basal 2 segments white, apical 3 segments black 2
- Hindtarsus black 3
2. Mesonotum and mesepisternum black; abdomen black, basal plates pale; coxae mostly black *fusca* (Klug)
- Mesonotum with lateral margins of prescutum and scutellum orange; upper 1/3 of mesepisternum orange; abdomen black with basal 3 segments dark orange with black margins; coxae orange (lancet as in Fig. 150, with about 28 serrulae; male genitalia as in Fig. 155) *albitarsus*, new species
3. Wings blackish at base and apex and in intercostal area, hyaline to yellowish at center; thorax orange with most of mesoprescutum black; hindtibia black (lancet as in Fig. 151) *nigricosta*, new species
- Wings yellowish with apex beyond stigma blackish; thorax usually with more black, either on mesosternum or mesepisternum or on mesonotal lateral lobes; hindtibia whitish or orange basally 4
4. Mesepisternum and mesosternum orange; mesonotum with prescutum and lateral lobes black (basal 2 antennal segments white; lancet as in Fig. 152) *tria*, new species
- Mesosternum and/or at least lower 2/3 of mesepisternum black; mesonotum various 5
5. Mesonotum with only mesoprescutum black (lancet as in Fig. 153, long, slender, with about 50 serrulae) *longiserra*, new species
- Mesonotum with prescutum and lateral lobes black 6
6. Tegula orange; mesepisternum black; apex of abdomen and sheath black (lancet as in Fig. 154; sheath as in Fig. 149) *hoffmanni* Malaise
- Tegula black; mesepisternum orange; abdomen orange, sheath orange with black at apex . . . *hirticornis* (Klug)

SPECIES

albitarsus Smith, new species — Brazil (São Paulo, Santa Catarina)

Neurogymnia albitarsus Smith.

Female.—Length, 9.0 mm. Antenna black, apex of 1st segment and entire 2nd segment whitish; head black, palpi whitish. Thorax blackish with cervical sclerites, pronotum, lateral margins of mesoprescutum, mesoscutellum, upper 1/3 or less of mesepisternum, mesepimeron, and metathorax orange. Abdomen black, basal 3 segments more or less orange with apical margins black. Legs orange with apical margin of hindtibia and apical 3 hindtarsal segments black, apical 2 or 3 fore- and midtarsal segments infuscated blackish, basal 2 hindtarsal segments white. Wings uniformly lightly infuscated yellowish; veins brownish, costa and stigma yellow orange. Antenna long, slender, antennal length to head width as 7.2:3.0. Lower interocular distance to eye length as 3.3:2.9; distances between eye and hindocellus, hindocelli, and hindocelli to posterior margin of head as 1.2:1.0:1.0. Length of hindbasitarsus longer than length of following tarsal segments combined, as 3.4:3.0. Sheath similar to Fig. 149. Lancet (Fig. 150) with about 28 serrulae; distances between serrulae subequal to width of one.

Male.—Length, 7.0 mm. Color similar to that of female, but abdomen mostly orange with blackish above. Antennal length to head width as 5.3:2.7. Distances between eye and hindocellus, hindocelli, and hindocelli to posterior margin of head as 1.0:1.0:0.5. Other features as for female. Genitalia as in Fig. 155.

Holotype.—E, "Brazil: S.P., Sao Paulo, I-29-31-69, C. C. Porter" (Cambridge).

Paratypes.—BRAZIL: Same data as for holotype (1 M); Nova Teutonia, Santa Catarina, 26-III-1947, F. Plaumann (1 M) (Cambridge, New Haven).

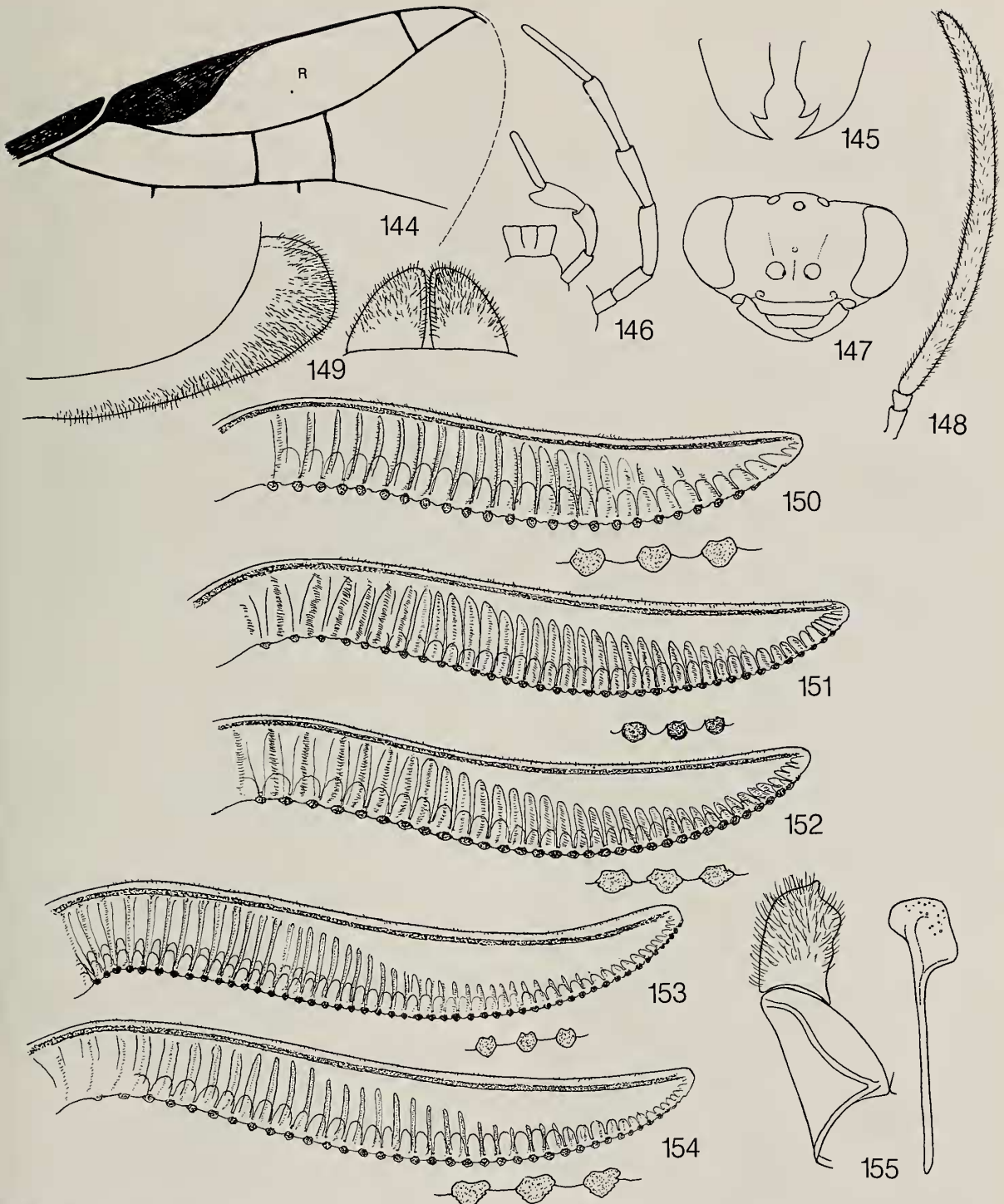
Remarks.—This species is characterized by the white basal two segments of the tarsi, orange upper portion of the mesepisternum, and lancet and male genitalia as figured. The coloration is closest to that of *fusca* from Mexico, but only the male of *fusca* is known and I did not examine the genitalia.

fusca (Klug), new combination — Mexico

**Hylotoma fusca* Klug 1834: 247. M. "Mexiko" (Berlin, M).—Kriechbaumer 1884: 294.

Didymia fusca: Norton 1867: 60.—Weldon 1907: 302 (U.S.A., Colorado; listed [prob. misdet., specimen not seen and genus not known from U.S.A.]).

Ptilia fusca: Kirby 1882: 47.—Cameron 1883: 45.—Dalla Torre 1894: 320.—Konow 1905a: 26.



Figs. 144-155. *Neurogymnia*. 144, Apex of forewing of *N. hoffmani*. 145, Mandibles of *N. hoffmani*. 146, Palpi of *N. hoffmani*. 147, Front view of head of *N. hoffmani*. 148, Female antenna of *N. hoffmani*. 149, Female sheath of *N. hoffmani*. Lancets of 150, *N. albitarsis*; 151, *N. nigricosta*; 152, *N. tria*; 153, *N. longiserra*; 154, *N. hoffmani*. 155, Male genitalia of *N. albitarsis*.

The only specimens of *Neurogymnia* I have seen are from South America. It is possible that *fusca* is mislabeled.

hirticornis (Klug), **new combination** — Brazil (Bahia)

**Hylotoma hirticornis* Klug 1834: 247. F. "Brasilien" (Berlin, F).— Kriechbaumer 1884: 294.

Didymia hirticornis: Norton 1867: 60.

Ptilia hirticornis: Kirby 1882: 47.— Dalla Torre 1894: 320.— Konow 1905a: 26.

The holotype is labeled "Bahia, Fr."

hoffmanni Malaise — Brazil (Rio de Janeiro, Espirito Santo, Santa Catarina)

**Neurogymnia hoffmanni* Malaise 1937a: 58-59. F, M. "Nova Bremen, Santa Catharina, Brazil" (Stockholm, F).

Malaise stated that the "male was reared from a white cocoon." I have seen one specimen from Mangaratiba, Rio de Janeiro, and another from Linhares, Espirito Santo.

longiserra Smith, **new species** — Brazil (Mato Grosso, Rio de Janeiro)

Neurogymnia longiserra Smith.

Female.—Length, 9.0-9.5 mm. Antenna black with 2nd segment dark orange to brownish. Head black; palpi whitish. Thorax orange with mesosternum (except center), lower 2/3 or more of mesepisternum, and triangular area covering most of mesoprescutum black. Abdomen orange with apical 3 or 4 segments, or terga, and sheath black. Legs orange with apical 2 or 3 fore- and midtarsal segments, extreme apex of hindtibia and apical 1/4 of hindtibia on outer surface, and hindtarsus black. Wings yellowish, apex beyond stigma blackish; veins and stigma yellow orange; veins in darker apex brownish. Antennal length to head width as 6.0:3.1. Lower interocular distance to eye length as 3.6:3.1. Distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.2:1.2:1.0. Length of hindbasitarsus to length of remaining tarsal segments as 3.0:2.8. Sheath similar to Fig. 149. Lancet long, slender, with about 50 serrulae, serrulae except those on apical 1/4 or less of lancet farther apart than width of one, as in Fig. 153.

Male.—Unknown.

Holotype.—F, "Rio de Janeiro, Tijuca, Werner" (São Paulo).

Paratypes.— BRAZIL: Chapada (1 F); Rio de Janeiro (1 F) (Pittsburgh).

Remarks.—This species is distinguished from others by the black hindtarsus, yellow wings with the apices blackish, only the prescutum of the mesonotum black, and the unusually long lancet with about 50 serrulae.

nigricosta Smith, **new species** — Brazil (Pará); Surinam

Neurogymnia nigricosta Smith.

Female.—Length, 8.0-8.5 mm. Antenna with first 2 segments white, 3rd segment black. Head black, supraclypeal area may be whitish; palpi whitish. Thorax orange with black triangular mark covering most of mesoprescutum. Abdomen orange, apical 2 or 3 terga and sheath black, sheath more orange at base. Legs orange with apical 1 or 2 foretarsal segments and mid- and hindtibiae and tarsi black; inner surface of midtibia whitish and extreme base of midtibia whitish. Wings hyaline to yellowish with extreme base, intercostal area, and apex beyond stigma blackish; stigma and veins in hyaline to yellowish area yellowish to brownish, other veins brownish to black. Antennal length to head width as 6.0:3.0. Lower interocular distance to eye length as 3.3:3.0. Distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.2:1.0:0.7. Length of hindbasitarsus to remaining tarsal segments combined as 3.2:2.5. Sheath similar to Fig. 149. Lancet with about 38 serrulae, distance between serrulae subequal to width of one, Fig. 151.

Male.—Unknown.

Holotype.—F, "Belem, Brasilia, Km 90 F Candiru, 21-VII-1972, Para, Brasil, T. Pimentel, Col." (Belém).

Paratype.— SURINAM: Kabelebo River, Avanavero-Falls, 5-12.IV.1971, D. C. Geijskes (1 F, Leiden).

Remarks.—The black hindtarsus, maculation of the forewing which is black at the base, apex, and in the intercostal area and yellow at the center, orange thorax with only the mesoprescutum black, and lancet are diagnostic for this species.

tria Smith, **new species** — Brazil (Goiás); Paraguay

Neurogymnia tria Smith.

Female.—Length, 7.5-8.0 mm. First and 2nd antennal segments white, 3rd segment black. Head black with supraclypeal area whitish, lateral margins of clypeus and most of labrum dark orange, and palpi whitish yellow. Thorax orange with black marks covering most of prescutum and mesonotal lateral lobes.

Abdomen orange with apical 2 or 3 terga and sheath black; base of sheath orange. Legs orange with apical 2 foretarsal segments black, apical 1/3 of midtibia on outer surface, midtarsus, and hindtibia and tarsus black (in paratype midleg orange with apical 3 tarsal segments black and only apical 1/2 of hindtibia black). Wings yellowish, blackish at apex beyond stigma; veins, costa, and stigma yellow orange, veins in darker apex brownish. Antennal length to head width as 5.8:3.7. Lower interocular distance to eye length as 3.0:2.7. Distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:1.0:0.5. Length of hindbasitarsus to remaining tarsal segments combined as 3.0:2.6. Sheath similar to Fig. 149. Lancet with about 37 serrulae, those on basal half farther apart or about as far apart as breadth of one, those on apical half closer together than breadth of one, Fig. 152.

Male.—Unknown.

Holotype.—*E*, "Est Goyas, Campinas, 1935, R. Spitz, coll." (São Paulo).

Paratype.—PARAGUAY: Asuncion, I.28.11.1974, col. R. Golbach (1 *E*, Tucumán).

Remarks.—This species is characterized by the black hindtarsus, yellow wings with the apices black, orange thorax with black only on the mesoprescutum and mesonotal lateral lobes, and lancet.

Genus *SERICOCEROS* Konow

Sericocera Brullé 1846: 669. Preoccupied by *Sericocera* Macquart 1834. Type species: *Sericocera spinolae* Brullé. Desig. by Rohwer 1911a.

Sericoceros Konow 1905a: 29. Emendation.

Sericocerus Mocsáry 1909: 8. Emendation.

Ardua Malaise 1937a: 53. Preoccupied by *Ardua* Giebel 1872. **New synonymy**. Type species: *Ardua marginipennis* Malaise. Orig. desig.

Neardua Malaise 1937a: 53-54. **New synonymy**. Type species: *Neardua pronotatus* Malaise. Orig. desig.

Adura Malaise 1941: 137. New name for *Ardua* Malaise.

Sericocerina Malaise 1955: 101. New name for *Sericocera* Brullé. Type species given as *Hylotoma gibba* Klug, but a new name takes the same type species as the name it replaces.

Weyrauchia Malaise 1955: 113-114. **New synonymy**. Type species: *weyrauchia rufonigra* Malaise. Orig. desig.

Xylosericocera Wolcott 1948: 749. Nomen nudum.

Schizocerina Smith 1969a: 541, 542. Mistake for *Sericocerina*.

Antenna (Figs. 159, 160) with 1st segment longer than broad, 2nd segment broader than long, 3rd seg-

ment of female antenna slender, of about uniform width; antennal length usually not more than 1.5X head width. Clypeus short, truncate, 3-4X broader than long (Fig. 157); malar space broad, subequal to or more than diameter of front ocellus; each mandible tridentate (Fig. 161); labial palpus 4-segmented, maxillary palpus 6-segmented (Figs. 162, 163) with segments of uniform width, maxillary palpus shorter than or slightly more than eye length; eyes small, slightly converging below (Fig. 157), lower interocular distance longer than eye length, sometimes as much as 2X longer; interantennal area not carinate, rounded; postocellar area short; head from above much broader than long (Fig. 158), sharply narrowing behind eyes, small in relation to thorax which, at pronotal angles, is much broader than head. Forewing (Fig. 156) with radial cell open; no intercostal crossvein; costal width equal to or greater than width of intercostal area; small basal anal cell present; 3 or 4 cubital cells, last closed cell usually longer on radius than on cubitus. Hindwing (Fig. 156) with anal cell present or absent, if present usually shorter than its petiole. Length of hindbasitarsus slightly shorter than or slightly longer than length of remaining tarsal segments combined; hindcoxae not contiguous, separated by distance nearly equal to breadth of one; tarsal claws simple.

All species are plump with a similar habitus, having a short, transverse head in relation to the enlarged thorax. The sheath, ovipositors, and male genitalia are all very similar. Thus, even though the hindwing is with or without an anal cell, the species included form a very distinctive group based on other characters.

A number of genera have been proposed. *Ardua* was based on a specimen without the anal cell in the hindwing and with a enlarged hindtibia (Fig. 166), but the enlarged hindtibia is most pronounced in the male, and it is the male of *mexicana*. Malaise separated *Neardua* by the "larger head" and the third cubital cell of the forewing small (as long on the cubitus as on the radius) and *Weyrauchia* by a "broader" head, a longer distance between the eyes (lower interocular distance two times the eye length), and no anal cell in the hindwing, but these characters are not significant since they occur in various forms and degrees throughout the genus. Malaise (1955) gave a key to species based on the "typical" forms, i.e., those not included in his above three genera, and those that have an anal cell in the hindwing. Smith (1971a) discussed the genus and reviewed the Mexican and Central American species. Most of the taxonomy is based on females. The sexes have not been associated for many species. The portion of the key for males should be used with caution. The male genitalia are

similar in structure and the males appear to be more variable in coloration than are the females.

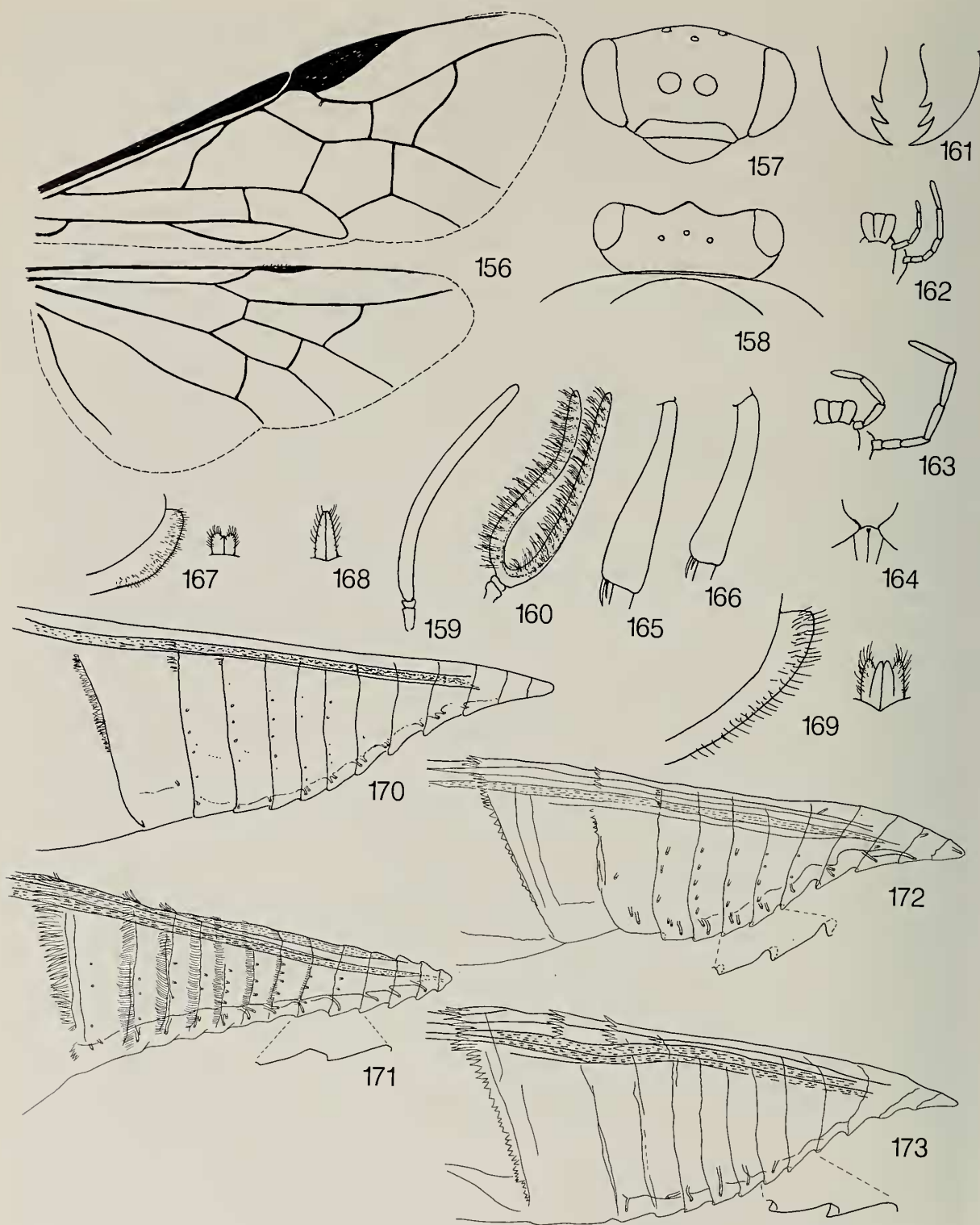
Representatives of *Sericoceros* occur from Mexico to northern Argentina with one species in the West

Indies. The biology of the Puerto Rican species, *krugii*, was discussed by Martorell (1941). This and other species have been recorded from *Coccoloba* spp. and one species is recorded from *Lonchocarpus* sp.

KEY TO SPECIES

1. Female 2
— Male 18
2. Abdomen black; hindwing with anal cell, except sometimes in *albicollis*. 3
— Abdomen orange; anal cell of hindwing present or absent 9
3. Head orange (tibiae and tarsi may be blackish; hindfemur sometimes blackish to brown; lancet as in Fig. 182) *dimidiatus* Konow
— Head black, face below antennae may be orange 4
4. Legs yellow, at most blackish spot at extreme apices of tibiae and apical tarsal segments infuscated (forewing black, more hyaline apical to stigma; clypeus, labrum, and supraclypeal area orange; hindwing with very small or no anal cell; lancet as in Fig. 170) *albicollis* (Klug)
— Legs with at least tibiae and tarsi mostly black 5
5. Legs, including coxae, entirely black; wings uniformly, darkly, black infuscated (lancet as in Fig. 171) *tannuus*, new species
— At least fore- and mid coxae and forefemur pale orange; wings blackish but becoming hyaline at apex beyond stigma 6
6. Face below antennae pale orange; all coxae and femora orange. 7
— Head black; hindlegs entirely or at least hindfemur black 8
7. Lancet as in Fig. 172 *brasilianus* (Klug)
— Lancet as in Fig. 173 *sutus*, new species
8. Palpi yellow orange; forefemur black to orange, midfemur blackish; lancet as in Fig. 174 *gibbus* (Klug)
— Palpi black; fore- and midfemora orange; lancet as in Fig. 183 *nigripalpis* (Malaise)
9. Anal cell of hindwing absent (Fig. 156); wings hyaline or blackish; legs entirely black or with only tibiae and tarsi black 10
— Anal cell of hindwing present; wings blackish, usually with apex beyond stigma more hyaline; legs with at most tibiae and tarsi black 14
10. Legs entirely and at least mesosternum black; wings uniformly blackish infuscated 11
— At least coxae, trochanters, and femora orange to yellow; wings hyaline with blackish infuscated spot at base and band below stigma, or blackish adjacent to veins 12
11. Dorsum of thorax orange or with mesoprescutum black; metanotum black (lancet as in Fig. 175) *alternator* (Norton)
— Mesonotum with prescutum, spot in inner side of each lateral lobe, and spot on anterior margin of scutellum black *rufoniger* (Malaise)
12. Wings hyaline with blackish infuscated areas confined to and adjacent to veins, interior of cells hyaline (lancet as in Fig. 176) *krugii* (Cresson)
— Wings with black band below stigma and black spot at base 13
13. Extreme apices of femora and all tibiae and tarsi black; antenna long, length to head width as 5.0:3.3; lancet as in Fig. 177, with annular spines on basal 3 annuli *edwardsii* (Cresson)
— Only tibiae, except for extreme bases, and tarsi black, or only apices of tibiae black, rarely extreme apices of femora black; antennal length to head width as 4.0:3.0; lancet as in Fig. 178, without annular spines (sheath as in Fig. 167) *mexicanus* (Kirby)
14. Metanotum and first 2 abdominal segments black (mid- and hindtibiae and tarsi black; lancet as in Fig. 179) *zonorus*, new species
— Metanotum and abdomen orange 15

15. Tarsi pale (mid- and hindtibiae black; clypeus and labrum with brown lateral spots; 1st and 2nd terga blackish basally) *palliditarsis* (Malaise)
— Tarsi black, basitarsi may be whitish at extreme base 16
16. Hindtibia with basal 1/3 entirely white or white on inner surface, apical 2/3 black; midtibia similar or with black at extreme apex only; basitarsi whitish at extreme base (lancet as in Fig. 180) *vumirus*, new species
— Mid- and hindtibiae and tarsi black 17
17. Sheath acutely pointed in dorsal view (Fig. 168); interantennal space distinctly keeled (orange with antenna, head, tibiae and tarsi black; wings dark) *obscurus* (Brullé)
— Sheath broad with projecting scopae in dorsal view (Fig. 169); interantennal space rounded (lancet as in Fig. 181) *calanticatus* (Konow)
18. Anal cell present in hindwing (holotype of *gaullei* [= *albicollis*] with cell inconspicuous) 19
— Anal cell absent in hindwing (Fig. 156) 22
19. Legs white, at most extreme apical portion of tibiae and tarsal segments black (thorax black, pronotum orange; head black; antennae, margin of clypeus, and labrum white; genitalia as in Fig. 184) *albicollis* (Klug)
— Legs black or orange or a combination of the two 20
20. Mesonotum mostly black, orange laterally on prescutum and laterally on lateral lobes (pronotum orange; legs black with fore- and midcoxae, trochanters, extreme apices of femora and sometimes base of basitarsi whitish; genitalia as in Fig. 186) *vumirus*, new species
— Mesonotum orange to red or sometimes only prescutum and/or scutellum blackish 21
21. Thorax orange to red with mesosternum black, pronotum, mesoprescutum, mesoscutellum, and/or metathorax may be blackish; abdomen and legs black (genitalia as in Fig. 185) *gibbus* (Klug)
— Thorax black with mesonotum except scutellum and spot on mesepisternum red; legs black with trochanters and apex of forefemur orange; abdomen black with anterior half of venter orange *nigrorubra* (Malaise)
22. Legs orange, or orange with tibiae and tarsi black 23
— Legs mostly black, may be pale at extreme apices of some segments 24
23. Thorax and abdomen orange; wings hyaline basally, lightly infuscated from stigma to apices; antenna 2X head width; Mexico; genitalia as in Fig. 187 *edwardsii* (Cresson)
— Thorax orange with various amounts of black on mesonotum; abdomen black above, orange below; wings mostly hyaline to very slightly darker toward apices; antenna about 1 2/3X head width; West Indies; genitalia as in Fig. 188 *krugii* (Cresson)
24. Abdomen black above, orange below 25
— Abdomen either all orange or all black 26
25. Thorax mostly orange with mesosternum black (genitalia as in Fig. 189) *mexicanus* (Kirby)
— Thorax black with pronotum orange *pronotatus* (Malaise)
26. Antenna long, nearly 2 1/3X head width (coloration variable, abdomen all orange or all black; thorax orange with metanotum and mesosternum black, black with pronotum and mesepisternum orange, or black with only pronotum, parapteron, and upper corner of mesepisternum orange; genitalia as in Fig. 190) *alternator* (Norton)
— Antenna about 1 1/3X head width 27
27. Abdomen black; thorax orange with black mesonotum, metanotum, and mesosternum *rufoniger* (Malaise)
— Abdomen orange, only genital capsule black; thorax black with upper mesepisternum, mesepimeron, metapleuron, pronotum, tegula, lateral areas of mesoprescutum, and mesonotal lateral lobes orange *ecuadoriensis* (Enderlein)



Figs. 156-173. *Sericoceros*. 156, Forewing and hindwing of *S. alternator*. 157, Front view of head of *S. gibbus*. 158, Dorsal view of head of *S. gibbus*. 159, Female antenna of *S. gibbus*. 160, Male antenna of *S. gibbus*. 161, Mandibles of *S. gibbus*. 162, Palpi of *S. gibbus*. 163, Palpi of *S. vumirus*. 164, Cervical sclerites of *S. gibbus*. 165, Hindtibia of *S. edwardsii*. 166, Hindtibia of *S. mexicanus*. Female sheaths of 167, *S. mexicanus*; 168, *S. obscurus*; 169, *S. calantiacus*. Female lancets of 170, *S. albicollis*; 171, *S. tannuus*; 172, *S. brasiliensis*; 173, *S. sintus*.

SPECIES

albicollis (Klug), **new combination** — Brazil;
French Guiana; Trinidad and Tobago

**Hylotoma albicollis* Klug 1834: 245. No locality [Brazil
?]. (Berlin, F).— Kriechbaumer 1884: 292-293.

Schizocerus albicollis: Norton 1867: 56.

Ptenus albicollis: Kirby 1882: 52.— Konow 1905a: 25.

Ptenos albicollis: Dalla Torre 1894: 323.

Sericocerina albicollis: Malaise 1955: 103.

**Ptenus gaullei* Konow 1906b: 183-184. F, M. "Guyana"
(Eberswalde, F).— Oehlke and Wudowenz 1984: 384
("F Lectotypus (des. D. R. Smith 1977), franz.
Guyana"). **New synonymy.**

Host: Two specimens at London from "Northern
Range, Trinidad" are labeled "reared specimen,
Coccoloba sp."

The holotype of *albicollis* is labeled "Brasil." The
locality was not mentioned in the original description.
Four specimens of *gaullei* with type labels are at
Eberswalde, 1 M and 3 F. All are labeled "Guyana
francaise." Oehlke and Wudowenz (1984) attributed
the lectotype designation to me, but that was based on
my label on the specimen and was not previously
published. The lectotype is a female since species
separation of this genus is based primarily on that sex.
The other 3 specimens are paralectotypes. The hindwing
has a very short, inconspicuous anal cell, absent in
some specimens though with the base of 1A present.
The anal cell is absent in the lectotype of *gaullei*. A few
specimens have the radial cell of the forewing nearly
closed.

alternator (Norton) — Guatemala; El Salvador;
Mexico (Chiapas, Guerrero, Hidalgo,
Michoacán, Puebla, Veracruz); Panama.

**Sericocera alternator* Norton 1867: 53. F. "Jalapa,
Mexico" (Genève, F).— Cameron 1883: 46, pl. 3, fig.
4.— Dalla Torre 1894: 310.

Sericoceros alternator: Konow 1905a: 28.

Sericocerina alternator: Smith 1971a: 525 (holotype).

**Sericocera plumicornis* Norton 1867: 52-53. M.

"Cordova, t.c. Mexico" (Genève, M).— Cameron
1883: 47 (as syn. of *villosus* Norton).— Dalla Torre
1894: 310 (as syn. of *villosus*). **New synonymy.**

Sericoceros plumicornis: Konow 1905a: 28.

Sericocerina plumicornis: Smith 1971a: 525 (holotype).

**Sericocera quercus* Cameron 1883: 46-47, pl. 1, fig. 15.
F. "Guatemala, Quiche Mountains 7000 to 9000 feet"
(London, F) (see hosts).— Dalla Torre 1894: 310.

New synonymy.

Sericoceros quercus: Konow 1905a: 28.

Hosts: From Cameron (1883): "Mr. Champion sends
along with the female a small bit of the leaf of an oak,
on the lower side of which are arranged sixteen eggs in
four rows. The eggs are about 1 millim. in length, of the
usual shape, pinkish in colour, and are but slightly
imbedded in the leaf, from which they stand erect."

On the same pin as the holotype of *quercus* (BM
#1,673) is a small piece of a leaf with several eggs
"glued" on upright. Whether or not oak is the correct
identification for the plant is open to question. Two
adults and two larvae intercepted at U.S. Quarantine at
Brownsville, Texas, from Mexico are labeled: Mexico
(POE [port of entry] Brownsville, Tex.), 3-23-83, on
Tillandsia betamiano-minor (root), 3-22-83.

The males of *alternator* show several color forms,
some are colored as the female, others have only the
mesonotum black, and others have the mesothorax
black as well as the abdomen which is the color form
described by Norton as *plumicornis*. A series of males
from Veracruz, all with the same date and locality, have
both orange and black color forms. Cameron's *quercus*
differs from the typical females only by the presence of
a black area on the mesoprescutum. Most specimens I
have seen have the mesonotum entirely orange.

brasiliensis (Klug), **new combination** — Brazil
(Bahia, Pará)

**Hylotoma brasiliensis* Klug 1814: 308-309. F. "Bahia"
(Berlin, F).— Kirby 1882: 51 (as syn. of *americana*
L.).— Kriechbaumer 1884: 74, 292.— Konow 1905a:
25 (as syn. of *americana* L.).

Schizocerus brasiliensis: Norton 1867: 56.

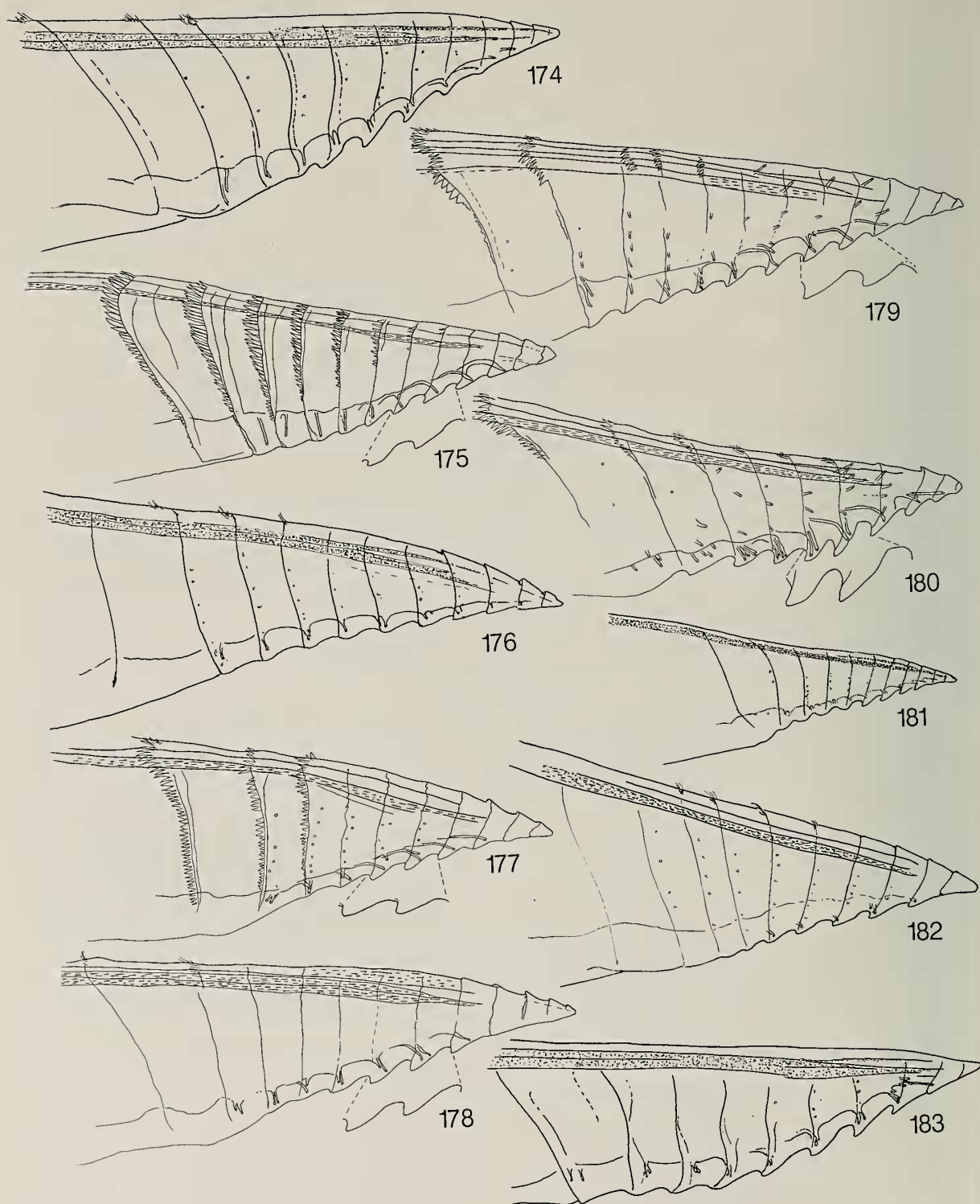
Sericocerina brasiliensis: Malaise 1955: 104.

**Trailia nigro-lineata* Cameron 1878: 150. F. "Bahia"
(London, F). **New synonymy.**

Gymnia nigrolineata: Kirby 1882: 42.— Dalla Torre
1894: 318.— Konow 1905a: 27.

Sericocerina nigrolineata: Malaise 1955: 103.

The holotype of *nigrolineata* is BM #1.155. I have
seen one specimen from Santarem, Brazil. *Incalia*
americana (L.) is a species in the Pergidae
(Syzygoniinae).



Figs. 174-183. *Sericoceros*, female lancets. 174, *S. gibbus*; 175, *S. alternator*; 176, *S. krugii*; 177, *S. edwardsii*; 178, *S. mexicanus*; 179, *S. zonorus*; 180, *S. vumirus*; 181, *S. calantiacus*; 182, *S. dimidiatus*; 183, *S. nigripalpis*.

calanticatus Konow — Brazil (Espírito Santo; Rio Grande do Norte)

**Sericoceros calanticatus* Konow 1906b: 245. F. "Brasília (Espírito Santo)" (Eberswalde, F).— Oehlke and Wudowenz 1984: 371 (holotype).

Sericocerus fulvus Mocsáry 1909: 8-9. F. "Brasília: Rio Grande" (Budapest, F). **New synonymy.**

Sericocerina fulva: Malaise 1955: 103.

I have seen several specimens from Natal, Rio Grande do Norte.

dimidiatus Konow — Brazil (Amazonas); Colombia; Ecuador; Guyana

**Sericoceros dimidiatus* Konow 1908a: 146. F. "Brasília (Teffé)" (Eberswalde, F).— Oehlke and Wudowenz 1984: 377 ("F (?) Holotypus, Teffé, 13.6.1906, leg. Ducke").

Sericocerina amazonica Malaise 1955: 103. F.

"Amazonas" (Stockholm, F). **New synonymy.**

Sericocerina columbiana* Malaise 1955: 103. F. "Columbia (Bogotá)" (Stockholm, F). **New synonymy.

I regard the specimen at Eberswalde as the holotype and am not sure why Oehlke and Wudowenz (1984) questioned it. I have seen specimens from New River, British Guiana, and Sto. Domingo, Pich. Prov., Ecuador, 680 m.

ecuadoriensis (Enderlein), **new combination** — Ecuador

**Gymnia ecuadoriensis* Enderlein 1919: 120. M. "Ecuador. Loja" (Warszawa, M).

This may be the male of another species, but, since the sexes are so different in *Sericoceros*, it is impossible to associate it at present.

edwardsii (Cresson) — Mexico (Oaxaca, Sinaloa)

**Sericocera edwardsii* Cresson 1880: 2. F, M. "Mazatlan, Mexico" (Philadelphia, F).— Cameron 1883: 45.— Dalla Torre 1894: 310.— Cresson 1916: 4 (lectotype).

Sericoceros edwardsii: Konow 1905a: 28.

Sericocerina edwardsii: Smith 1971a: 530 (lectotype).

Thus far, *edwardsii* is known from only a few localities. Specimens from Oaxaca are from 3 mi. E. Salina Cruz and 3 mi. E. La Ventosa. For other references using the name *edwardsii* (misidentifications), see *mexicanus* (Kirby). The two species have been con-

fused, but can be separated by the length of the antenna and lancet structures as cited in the key. In the Macleay Museum, Sydney, there are 1F and 3M labeled "Mazatlan, Mexico, 24." The labels are identical to that on the Cresson's type in Philadelphia and are probably part of the type series.

gibbus (Klug) — Bolivia; Brazil (Amapá, Amazonas, Ceará, Mato Grosso, Pará); Colombia; Costa Rica; Guatemala; Guyana; Honduras; Mexico (Chiapas, Veracruz); Panama; Peru; Surinam; Venezuela

Tenthredo americana: Fabricius 1793: 109

(misidentification, see Malaise 1955: 104).

**Hylotoma* (*Schizocera*) *gibba* Klug 1834: 245, pl. 2, fig. 7. F. Surinam. (Berlin, F).— Kriechbaumer 1884: 293.

Schizocerus gibba: Norton 1867: 56.

Scobina gibba: Kirby 1882: 41 (Brazil, Honduras).— Dalla Torre 1894: 317.

Sericoceros gibbus: Konow 1905a: 28.— Konow 1906b: 184 (syn.: *spinolae* Brullé).— Kimsey and Smith 1985: 197-199, fig. 24-31 (host a; larva; life history notes).

Sericocera gibba: Rohwer 1912c: 62 (Ceará, Brazil).

Sericocerina gibba: Malaise 1955: 104 (in key; distribution).

Sericocera spinolae Brullé 1846: 669, pl. 47, fig. 5. F ? "l'Amerique meridionale" (Stockholm, M).— Norton 1867: 54.— Dalla Torre 1894: 310.— Malaise 1937a: 47 (type lost; neotype designated).

Sericoceros spinolae: Konow 1905a: 28.

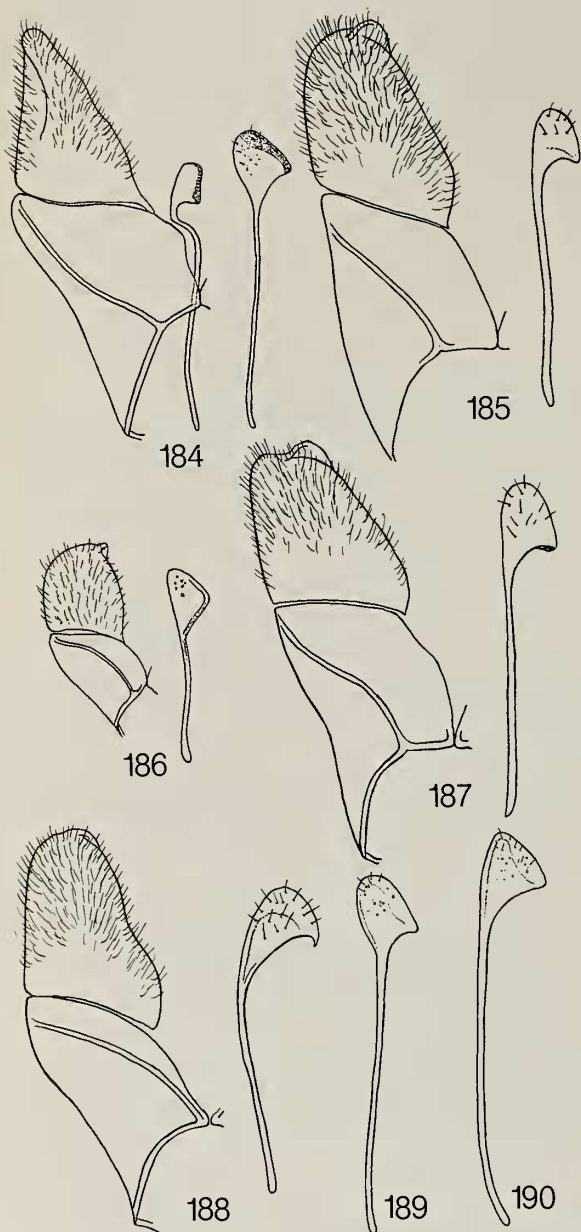
**Sericocera villosa* Norton 1867: 53. F. "Cordova, t.c. Mexico" (Genève, F).— Cameron 1883: 47, pl. 2, fig. 15 (as syn. of *plumicornis* Norton).

Sericocerina villosa: Smith 1971a: 525 (holotype).

Hosts: a) *Coccoloba manzanillensis* (Polygonaceae); b) Specimens in Washington from Canal Zone were reared from *Coccoloba coracasana*; c) Reared from *Coccoloba guanacastensis* in Costa Rica by D. H. Janzen.

A specimen from Panama has a portion of a leaf on the pin with about 20 oval eggs attached perpendicularly.

According to Malaise (1955), *Tenthredo americana* of Fabricius (1793) is *gibbus*, not *americana* Linnaeus (1758) (see *Incalia americana* (L.), Pergidae). Malaise (1937b) examined the Fabrician specimens and stated that they are the same as *spinolae* Brullé. Therefore the reference by Fabricius to *americana* must be regarded as a misidentification. This is a relatively common species from Mexico to northern South America.



Figs. 184-190. *Sericoceros*, male genitalia. 184, *S. albicollis*; 185, *S. gibbus*; 186, *S. vumirus*; 187, *S. edwardsii*; 188, *S. krugii*; 189, *S. mexicanus*; 190, *S. alternator*.

krugii (Cresson) - Dominican Republic; Puerto Rico; U.S. Virgin Islands (St. Thomas)

**Schizocera krugii* Cresson 1880: 2. M. "Porto Rico" (Philadelphia, M.)— Dalla Torre 1894: 313.— Cresson 1916: 5 (type).— van Zwaluwenberg 1918: 28 (host f).— Martorell 1941: 141-144, fig. 1-4 (biology; hosts a-e).

Schizoceros krugi: Konow 1905a: 29.

Schizocerus krugii: Kirby 1882: 38.

Sericocera krugii: Kirby 1882: 389 (syn.: *zaddachi* Dewitz).— Wolcott 1948: 749-751, fig. 1-4 (biology).

Schizocerina (!) *krugii*: Smith 1969a: 542 (host e).

Sericocerina krugii: Smith 1971a: 530 (holotype).— Smith 1972: 181-183, fig. 43-46 (larva).

Schizoceras zaddachi Dewitz 1881: 207-208, fig. 12, 12A. E. M. Puerto Rico. (Berlin ?).

Hosts: a) *Coccoloba uvifera*; b) *Coccoloba grandifolia*; c) *Coccoloba pirifolia*; d) *Coccoloba laurifolia*; e) *Coccoloba venosa*; f) *Chrysobalanus icaco*.

Martorell (1941) discussed the biology of this species, indicating the presence of social habits similar to some of the Dielocerinae. He stated "During oviposition the females do not move from the egg-mass even if disturbed" and "... even after the last egg of a cluster is laid the females stay over the egg-mass as if they were brooding the eggs." The cocoons are usually in masses on the host leaves, but there is no communal covering of the cocoon mass. I have seen several cocoon masses, and the cocoons are randomly attached to each other in no particular order. This species has long been known from Puerto Rico. Only more recently has it been found on other islands. The data on the Virgin Islands specimens are "St. Thomas, Frenchman Bay Estate, 750', 17 Nov. 1978" (coll. of Mike Ivie, Montana State University, Bozeman), and the data on the Dominican Republic specimens are "Lacey al Medio, Feb. 16, 1964" (Washington).

mexicanus (Kirby), new combination — Costa Rica; El Salvador; Guatemala; Honduras; Mexico (Colima, Oaxaca, Veracruz); Nicaragua; Panama

**Gymnia mexicana* Kirby 1882: 43, pl. 3, fig. 17. E.

"Mexico. Orizaba" (London, E.)— Dalla Torre 1894: 318.— Konow 1905a: 27.

Sericocera mexicana: Cameron 1883: 46.

Sericocerina mexicana: Malaise 1955: 1-2.

**Ardua marginipennis* Malaise 1937a: 53. M. "Nicaragua

(Corinto)" (Stockholm, M). **New synonymy.**
Sericocerina edwardsii: Smith 1972: 183, fig. 47-49
 (larva; Honduras; host a; misidentification).

Hosts: a) *Coccoloba* sp.; b) From a series from La Ceiba, Honduras, "feeding on *Coccoloba uvifera*."

A portion of an unidentified leaf with about 20 eggs on the surface is associated with a specimen from Lake Catemaco, Veracruz (at New York).

The holotype of *mexicana* is BM #1.156 and is labeled "Mex." *Ardua marginipennis* was described from a male. A diagnostic feature for this species and genus was the enlarged hindtibia (Fig. 166). The hindtibia is more enlarged in the male than in the female.

nigripalpis (Malaise), **new combination**—Bolivia?; Brazil (São Paulo)

**Sericocerina nigripalpis* Malaise 1955: 104. E. "Brazil, Sao Paulo (Tabaguara)" (Stockholm, E).

The holotype is labeled "S. Paulo, Tabaguara, 24-3-1940, O. Monte, col." A female from "Bolivia" at London appears to be this species.

nigrorubra (Malaise), **new combination**—Brazil (Rio de Janeiro)

**Sericocerina nigrorubra* Malaise 1955: 102. M. "Rio de Janeiro (Grajahu)" (Stockholm, M).

The holotype is mostly black with the mesoprescutum, mesonotal lateral lobes, and spot on the mesopleuron red. I have not seen other specimens. It may be the male of another species.

obscurus (Brullé) — Brazil (Bahia, Rio de Janeiro)

Schizocera obscura Brullé 1846: 668, pl. 47, fig. 4.
 "l'Amérique méridionale" (lost ?).— Dalla Torre 1894: 313.

Schizocerus obscura: Norton 1867: 56.— Kirby 1882: 38.

Sericoceros obscurus: Konow 1905a: 28.

Sericocerina obscura: Malaise 1955: 102 (syn.:

compressicornis Cameron; Santa Rita, Bahia).

**Trailia compressicornis* Cameron 1878: 149-150. E.

"Brazil" (London, E).— Kirby 1882: 42 (as syn. of *tibialis* Spinola).

The holotype of *compressicornis* is BM #1.154. I have seen specimens from Itatiaya, 700 m, Est. do Rio, Brazil.

palliditarsis (Malaise), **new combination** — Brazil (Santa Catarina)

**Sericocerina palliditarsis* Malaise 1955: 103. E. "Brazil, Sta Catharina (Hansa Humbolt)" (Stockholm, E).

I have seen only the holotype. It is orange with the head (except palpi), antenna, and tibiae black, first two terga with blackish spots, and tarsi white.

pronotatus (Malaise), **new combination** — Brazil (Amazonas)

**Neardua pronotatus* Malaise 1937a: 54. M. "Amazonas" (Stockholm, M).

I have seen only the holotype. It is black with the antenna brownish, pronotum and venter of abdomen orange, and the extreme base of the hindtibia whitish. This could be the male of another species.

rufoniger (Malaise), **new combination** — Peru

**Weyrauchia rufonigra* Malaise 1955: 114. E, M. "Peru (Contumafa, 1700 m)" (Stockholm, E).

I have seen only the holotype. It has the antenna, head, and legs black; thorax orange with mesosternum, mesoprescutum, inner margins of mesonotal lateral lobes, and anterior margin of mesoscutellum black; and abdomen orange.

sutus Smith, **new species** — Argentina (Tucumán)

Sericoceros sutus Smith.

Female.— Length, 9.0 mm. Antenna with 1st and 2nd segments brownish, 3rd segment black. Head black with interantennal area, supraclypeal area, clypeus, labrum, and palpi whitish to orange. Thorax and abdomen orange. Legs orange with mid- and hindtibiae and tarsi, outer surface of foretibia, and foretarsus black. Wings darkly infuscated black, nearly hyaline at apex beyond stigma; veins and stigma black. Antennal length 1 1/3X head width, as 4.2:3.0; no carina between antennae; postocellar area nearly 3X broader than long; lower interocular distance to eye length as 2.0:1.3; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.5:0.7:0.4. Hindbasitarsus subequal to length of remaining tarsal segments combined, as 1.5:1.4. Forewing with 1st cubital crossvein present, therefore with 4 cubital cells; hindwing with anal cell. Sheath with short, slender, narrowly projecting scopae, in lateral view rounded

(similar to Fig. 167). Lancet as in Fig. 173.

Male.—Unknown.

Holotype.—E, "RA, Tucuman, Los Nogales, III-1947, col. A. Ares." (Tucumán).

Remarks.—This species is close to *brasilianus* and is essentially identical in coloration. Differences in the lancet will separate the two (Figs. 172, 173). Also, in *brasilianus* the hyaline portion of the wing begins slightly basad to the stigma, whereas in *sutus* the hyaline portion does not begin until midway between the stigma and the apex of the forewing.

tannuus Smith, new species—Brazil (Minas Gerais)

Sericoceros tannuus Smith.

Female.—Length, 11.0 mm. Antenna and head black. Thorax orange with metathorax black except for dark reddish metascutellum; blackish infuscated stripes separate mesosternum and mesepisternum. Legs and abdomen black. Wings uniformly darkly infuscated black. Antennal length longer than head width, as 4.5:3.6; no carina between antennae; postocellar area 2X broader than long; lower interocular distance to eye length as 2.2:1.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.7:0.6. Forewing with 1st cubital crossvein weakly sclerotized and indistinct, therefore appearing to have 3 cubital cells. Hindwing with anal cell. Hindbasitarsus slightly shorter than remaining tarsal segments combined, as 1.6:1.8. Sheath with short, slender, posteriorly projecting scopae, rounded in lateral view (similar to Fig. 167). Lancet as in Fig. 171.

Male.—Unknown.

Holotype.—E, "Serra do Cipo, Santana do Riacho, MG, 9-XI-1967" (São Paulo).

Remarks.—The black head, legs, and abdomen, and the uniformly black infuscated wings will separate *tannuus* from other species. The species *brasilianus*, *gibbus*, and *nigripalpis* each have much of the front and middle legs orange, and each have the apices of the wings hyaline.

vumirus Smith, new species—Costa Rica; El Salvador; Mexico (Chiapas); Venezuela

Sericoceros vumirus Smith.

Female.—Length, 9.0-9.2 mm. Antenna black, scape and pedicel may be brownish to white. Head black; labrum and palpi white; clypeus and supraclypeal area may be brownish. Thorax and abdomen orange. Legs with coxae, trochanters, and femora orange; tibiae black with outer surface of foretibia, extreme base of midtibia, and basal 1/3 of hindtibia entirely or only on

inner surface, white; tarsi black with extreme base of each basitarsus and sometimes part of 2nd tarsal segment of fore- and midlegs white. Wings darkly infuscated black, becoming hyaline at apices; veins and stigma black. Antennal length 1 1/4X head width, as 4.0:3.0; no carina between antennae; postocellar area 3X broader than long; lower interocular distance to eye length as 1.7:1.3; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.5:0.3; palpi as in Fig. 163, maxillary palpus slightly longer than eye length; mandible with 3rd tooth smaller than 2 apical teeth. Forewing with 1st cubital crossvein present or indistinct, therefore sometimes with 3 cubital cells; hindwing with anal cell. Hindbasitarsus subequal to length of remaining tarsal segments combined, as 1.6:1.6. Sheath with short, slender, posteriorly projecting scopae, in lateral view narrowly rounded at apex (similar to Fig. 167). Lancet with central serrulae deep (Fig. 180).

Male.—Length, 7.5-8.0 mm. Antenna black, pedicel may be whitish. Head black with labrum and palpi whitish. Thorax black with upper margin of mesepisternum, upper 1/2 of mesepimeron, pronotum, mesoprescutum laterally, and inner, anterior, and lateral margins of mesonotal lateral lobes orange. Abdomen black with basal 2-3 sterna orange. Legs black with forecoxa, apices of mid- and hindcoxae, trochanters, apices of femora, inner surface of foretibia, inner surfaces of mid- and hindtibiae at base, and sometimes bases of basitarsi whitish. Genitalia as in Fig. 186.

Holotype.—E, "Santa Rosa National Park, Guanacaste Province, Costa Rica, D. H. Janzen," "82SRNP-344" (Washington).

Paratypes.—COSTA RICA: Same data as for holotype (2 E, 1 M), same except "85-SNRP-444" (2 E, 2 M). EL SALVADOR: "9-9-54, P.A.B." (1 E); Los Chorrros National Park, VII-16-1961, M. E. Irwin, collector (1 E); Santa Tecla, 900 m, 31-VII-1972, No. B435, Leg. S. & L. Steinhauser (1 E); Cerro, San Jacinta, 22-XII-1971, No. B456, Leg. S. & L. Steinhauser (1 E). MEXICO: Chiapas, 20 km NW Ocozocoautla, Savannah, 26-VIII-1972, Carolyn Mullinex (1 E). VENEZUELA: Cojedes-El Pinero, 13-V-1967, J. and B. Dechyne leg (1 E). (Davis; San Francisco; Gainesville; Maracay; Washington).

Host.—Reared from *Lonchocarpus minimiflorus* (Leguminosae) in Costa Rica, by D. H. Janzen.

Remarks.—This species is separated from other species of *Sericoceros* in the preceding key. The almost entirely orange thorax and abdomen and deep serrulae of the lancet are diagnostic.

zonorus Smith, **new species** — Brazil (Minas Gerais)*Sericoceros zonorus* Smith.

Female.— Length 10.0 mm. Antenna and head black; palpi pale orange. Thorax orange, sometimes indistinct black area at center of mesoprescutum; metanotum black with scutellum dark orange. Legs orange with mid- and hindtibiae and tarsi and outer surface of foretibia and tarsi black; bases of fore- and midtibiae, inner surface of midtibia, and each tarsus may be brownish to orange. Abdomen orange with first 2 terga black, apical 1/2 of 2nd terga may be orange. Wings lightly, uniformly black infuscated, little or no lighter at apices; veins and stigma black. Antennal length 1 1/4X head width, as 4.1:3.4; no carina between antennae; postocellar area 2 1/2X broader than long; lower interocular distance to eye length as 2.3:1.3; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.6:0.5. Forewing with 1st cubital crossvein faint or absent, thus appearing to have 3 cubital cells; hindwing with anal cell. Hindtarsus subequal to length of following tarsal segments combined, as 1.3:1.4. Sheath with short, slender, posteriorly projecting scopae, in lateral view rounded, similar to Fig. 167. Lancet as in Fig. 179.

Male.— Unknown.

Holotype.— E, "Bello Horizonte, M. Geraes, Brazil, 1-6 Nov. '19, Cornell University Expedition" (Ithaca).

Paratypes.— BRAZIL: Same data as for holotype (1 E); "Bras.," "Museum Paris, Brésil, coll. O. Sichel 1867 (1 E). (Ithaca, Paris).

Remarks.— The presence of the anal cell in the hindwing and mostly black metanotum and two basal abdominal terga separate *zonorus* from other species of *Sericoceros*.

Genus **SUBSYMMIA** Malaise

Subsymmia Malaise 1955: 109-110. Type species: *Subsymmia machaerii* Malaise. Orig. desig.

Asymmia Malaise 1955: 111. **New synonymy.** Type species: *Asymmia albuquerquei* Malaise. Orig. desig.

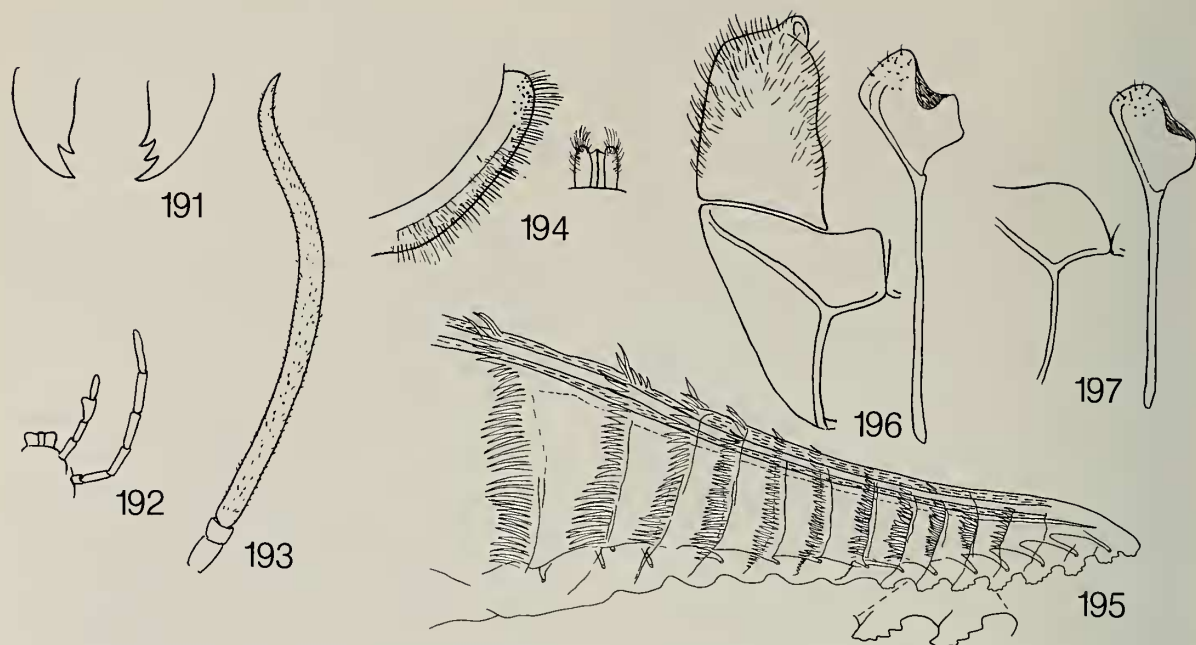
Antenna (Fig. 193) with 1st segment longer than broad, 2nd segment broader than long, 3rd segment long, tapering to pointed apex, laterally flattened; antennal length about 2X head width. Clypeus subtruncate (similar to Fig. 157); malar space broad, equal to or more than diameter of front ocellus; mandibles asymmetrical (Fig. 191), left mandible tridentate, right mandible bidentate; eyes small, slightly converging below, lower interocular distance greater than eye length; maxillary palpus slightly longer than eye length, labial palpus 4-segmented, maxillary palpus 6-segmented, segments of uniform width except 3rd labial palpal segment slightly wider than others (Fig. 192); interantennal area rounded, not carinate. Head from above sharply narrowing behind eyes, short and broad, similar to *Sericoceros* (Fig. 158); postocellar area broader than long. Forewing without intercostal crossvein; radial cell open; 4 cubital cells, last closed cell longest on radius; small basal anal cell present. Hindwing with anal cell present, about as long as its petiole. Hindbasitarsus a little longer than following segments combined; tarsal claws simple; hindcoxae separated by distance of about 3/4 breadth of one.

Species of this genus are very similar to those of *Sericoceros* but have asymmetrical mandibles, a longer (about two times head width), more tapering, and laterally flattened third antennal segment, and the anal cell of the hindwing about as long as its petiole. *Subsymmia* was supposed to have subsymmetric mandibles whereas *Asymmia* asymmetrical mandibles. Malaise was mistaken about *Subsymmia*, and both genera are considered synonymous since there are no other differentiating characters.

The genus is known only from southeastern Brazil and northeastern Argentina.

KEY TO SPECIES

1. Hindtarsus white; palpi white; wings yellowish infuscated; male genitalia as in Fig. 196 (sheath and lancet as in Figs. 194, 195). *annulipes* (Schrottky)
- Hindtarsus black; palpi blackish infuscated; wings lightly blackish infuscated; male genitalia as in Fig. 197. *albuquerquei* (Malaise)



Figs. 191-197. *Subsymmia*. 191, Mandibles of *S. annulipes*. 192, Palpi of *S. annulipes*. 193, Female antenna of *S. annulipes*. 194, Female sheath of *S. annulipes*. 195, Female lancet of *S. annulipes*. Male genitalia of 196, *S. annulipes*; 197, *S. albuquerquei*.

SPECIES

Subfamily DIELOCERINAE

albuquerquei (Malaise), new combination —
Brazil (Rio de Janeiro)

Asymmia albuquerquei Malaise 1955: 111. F, M. "Rio de Janeiro (Corcovado and Grajahu)" (not located).

The type was not found at Stockholm, but two males which are probably paratypes were located. One is labeled "Corcovado - Rio D.F., 7-1948, Albuquerque col." and the other the same except "1.6.1947, Wygodzinsky col." Malaise described the species from 1 F and 2 M.

annulipes (Schrottky), new combination —
Argentina (Misiones); Brazil (Paraná, Santa Catarina, São Paulo)

**Brachyphatnus annulipes* Jörgensen 1913 (Oct.): 262. M. "Monte de Bonpland". Nomen nudum.

**Brachyphatnus annulipes* Schrottky 1913 (Nov.): 703. M. "Bompland" (La Plata, M).— Malaise 1955: 108.

**Subsymmia machaerii* Malaise 1955: 110: F, M. "Argentina, Misiones (Loreto)" (Stockholm, F) (host a). New synonymy.

Host: a) "Ex *Machaerium* sp.?"

Dielocerinae Benson 1938: 375.

Pachylotinae Benson 1938: 375.

Theminae Benson 1938: 375.

Topotritini Benson 1938: 375.

Dielocerini Benson 1963: 634.

Antennal flagellum of male furcate (Fig. 203). Antennal insertions located below level of middle of eyes (Figs. 200, 228, 238); head without sharp carinae and without genal carina; head from above extremely enlarged behind eyes (Figs. 201, 229, 230). Maxillary palpus 3-6 segmented, labial palpus 3-4 segmented (Figs. 205, 215, 227, 241, 262), maxillary palpus shorter than eye length; labium trilobed or without lobes (in *Themos*). Mandibles both simple or with small basal lobe on right mandible and possibly 2 or 3 small crenulations at base of left mandible (Figs. 204, 216, 240, 261); mandibles of *Themos* swollen at base so their thickness is half or more length of a mandible (Fig. 239). Pronotum without diagonal groove. Cervical sclerites narrow to broadly rounded on meson, nearly broadly meeting (Fig. 263). Cenchri closer together than half breadth of one. Forewing (Figs. 198, 256) with or without (in *Themos*) intercostal crossvein (Sc); costa narrower to about same width as intercostal area, in males or some genera costa more swollen and

Sc apparently absent or difficult to see; 1r joins stigma near base of stigma; veins M and Rs+M meet Sc+R close together or well separated; radial cell closed; basal anal cell present or absent; basal crossvein Cu_1 between M+ Cu_1 and 1A present in *Mallerina*. Hindwing (Figs. 198, 236) with radial cell open at apex; anal cell present or absent; crossvein Cu_1 present in *Mallerina*. Mid- and hindtibiae without preapical spines; apical spines of foretibia subequal in length; *Pachylota* without apical tibial spines (Fig. 231). Tarsal claws simple or bifid (in *Themos* all claws bifid or foreclaw bifid and mid- and hindclaws simple with large basal lobe, Figs. 242, 243).

Species of this subfamily are the largest of Argidae, most being more than 10 mm long. Most have small eyes with the lower interocular distance greater than the eye length and have the head broadened behind the eyes in dorsal view. Some members show some unusual characteristics such as the lack of apical tibial spines in *Pachylota*, "inflated" mandibles, inner tooth of the tarsal claws, and reduced palpi without labial lobes in *Themos*, and presence of a basal crossvein (Cu_1) in *Mallerina*. Other characteristics that help to separate this subfamily are the bifurcate antennal flagellum of the male, lack of preapical tibial spines, lack of inner teeth on the mandibles or right mandible with a basal lobe, usual presence of an intercostal crossvein and lack of a basal anal cell in the forewing, and very short palpi.

In addition, where habits are known, subsocial habits reach their highest development in the *Dielocerinae*. Females of some species exhibit maternal care or protection of eggs and larvae, the larvae feed gregariously usually in a distinctive pattern, and cocoon masses are formed on the trunks of trees or shrubs protected by a common covering of their own making. The most detailed account is that by Dias (1976) for *Dielocerus diasi*.

Genus **DIELOCERUS** Curtis

Dielocerus Curtis 1844: 250. Type species: *Dielocerus ellisi* Curtis. Desig. by Rohwer 1911a.

Dielocera Cameron 1878: 147. Emendation.

Dieloceros Konow 1899a: 313. Emendation.

Antenna with 1st segment longer than broad, 2nd segment about as long as broad; 3rd segment of female antenna thick, usually somewhat laterally flattened and with slight lobe at base (Figs. 202, 203); antennal length not more than 1.24 x head width. Clypeus with central semicircular emargination (Fig. 200); labrum rounded; malar space equal to or greater than diameter

of front ocellus; right mandible with basal tooth, left mandible simple (Fig. 204), mandibles slightly enlarged at base in lateral view, evenly tapering; palpi short, maxillary palpus about half eye length, maxillary palpus 5-6 segmented, labial palpus 4-segmented, labium 3-lobed (Fig. 205); interantennal area low and rounded, sometimes with very low ridge next to each antennal socket; eyes small, converging below, lower interocular distance much longer than eye length (Fig. 200); head from above distinctly broadened behind eyes (Fig. 201); postocellar area long. Cenchri large but slightly farther apart than other genera, separated by distance of about 3/4 breadth of one. Forewing (Figs. 198, 199) with costa narrower than or equal to intercostal area (more swollen in males than females); intercostal crossvein (Sc) present (sometimes difficult to see if area is blackish infuscated); radial cell closed, with short accessory vein; basal anal cell absent; 4 cubital cells, the last closed cubital cell nearly quadrate, sometimes a little longer on cubitus than on radius; vein M meets Sc+R basal to point where Rs+M meets Sc+R, the distance equal to less than half length of M. Hindwing (Fig. 198) without anal cell, vein 2A+3A entirely or partially atrophied, anal cell never complete. Tarsal claws simple.

Species of *Dielocerus* are large and robust, 9-15 mm long. They are separated from other genera by the intercostal crossvein and closed radial cell of the forewing (the antero-apical margin of the forewing is uneven in *diasi*, Fig. 198, similar to the male of *Pachylosticta* [Cimbicidae, Smith 1989a, Fig. 29]), emarginated clypeus, broadened head behind the eyes in dorsal view, lack of a complete anal cell in the hindwing, and simple tarsal claws. They may be confused with the large species of *Themos*, but *Themos* have very enlarged mandibles, "bulbous" in lateral view, a truncate clypeus, have an inner tooth on one or more of the tarsal claws, lack labial lobes, and have 3-segmented maxillary and labial palpi. *Digelasinus* is very similar to *Dielocerus* but is separated by the presence of a complete anal cell in the hindwing.

Females remain with and protect their eggs which are attached to a leaf surface. The larvae are gregarious and form cocoon masses underneath a common covering on tree or shrub trunks. For a detailed description, see Dias (1976) for *diasi*. *Dielocerus fasciatus* (Smith and Adis, 1984), *ocreatus*, and *formosus* are also known to form similar mass cocoons. Adults are not commonly collected individually. Most are obtained when cocoon masses are found and adults emerge. *Dielocerus* has been recorded from Ecuador, Peru, and throughout most of Brazil.

KEY TO SPECIES

1. Female 2
- Male 5
2. Wings yellowish infuscated; yellow orange with blackish marks on only mesonotal lateral lobes and hindtibia (lancet as in Fig. 207) *ocreatus*, new species
- Wings hyaline with infuscated black spot at base, dark band below stigma, and dark spot at apex; head and abdomen mostly black; thorax orange to red, sometimes with black markings 3
3. Mesonotum black, rest of thorax orange; hindtibia and hindtarsus black; less than 10 mm long (costa black, intercostal area infuscated black; apical wing margin even, without apical notch; lancet similar to that of *diasi*, Fig. 209) *fasciatus* (Enderlein)
- Thorax orange; hindtibia and/or hindtarsus with orange; 12-15 mm long 4
4. Costa black; intercostal area usually black infuscated; antero-apical wing margin even (Fig. 199); apical 4 hindtarsal segments usually black; lancet as in Fig. 208 *formosus* (Klug)
- Costa white; intercostal area hyaline; antero-apical margin of forewing convex (Fig. 198); apical 4 hindtarsal segments orange; lancet as in Fig. 209 (sheath as in Fig. 206) *diasi* Smith
5. Head above antennae black; mesonotum black; costa black 6
- Head orange; mesoprescutum orange, rest of mesonotum black; costa whitish (*hyaloptera* with posterior portion of mesoprescutum and of mesoscutellum brownish) 7
6. Apical 4 hindtarsal segment black; orange on hindorbits restricted to lower 1/3; large, 12-13 mm long; male genitalia as in Fig. 211 *formosus* (Klug)
- Hindtarsus orange; orange on hindorbits extends nearly to top of eye; small, less than 9 mm long; male genitalia as in Fig. 213 *fasciatus* (Enderlein)
7. Abdomen black with at most basal sterna orange; mesonotum except prescutum black; wings hyaline, costa white (male genitalia as in Fig. 210) *diasi* Smith
- Abdomen orange, basal plates and lateral areas of terga may be blackish; mesonotum black or with black marks on prescutum and each lateral lobe; wings hyaline or yellow, costa orange or white 8
8. Mesonotum with black mark on prescutum and each lateral lobe; metanotum orange; wings yellowish infuscated with costa and stigma and apical veins yellowish orange, basal veins dark brown (male genitalia as in Fig. 212) *ocreatus* new species
- Mesonotum black, brownish on posterior portion of prescutum and of scutellum; metanotum blackish; wings hyaline with costa whitish, and veins and stigma dark brown to black *hyaloptera* (Perty)

SPECIES

diasi Smith — Brazil (D.F., Goiás, Mato Grosso, Minas Gerais)

**Dielocerus diasi* Smith 1975: 369-374, fig. 1, 5, 6, 8, 9, 12-16. E, M, larva. "Brasilia, D.F., Brasil, reared, emerged in lab." (Brasilia, IBGE, E) (host a).— Dias 1976: 461-501, fig. (biology, gregarious behavior; host a).— Smith and Adis 1984: 720-721 (in key).

Host: a) *Sclerolobium aureum* (Leguminosae).

Dias (1976) gave an excellent account of the biology, habits, and behavior of this species. Other than D.F., I have seen specimens from Chapada, Mato Grosso; Viannopolis, Goias; and Nova Lima and Coromandel, Minas Gerais.

fasciatus (Enderlein) — Brazil (Amazonas); Ecuador; Peru

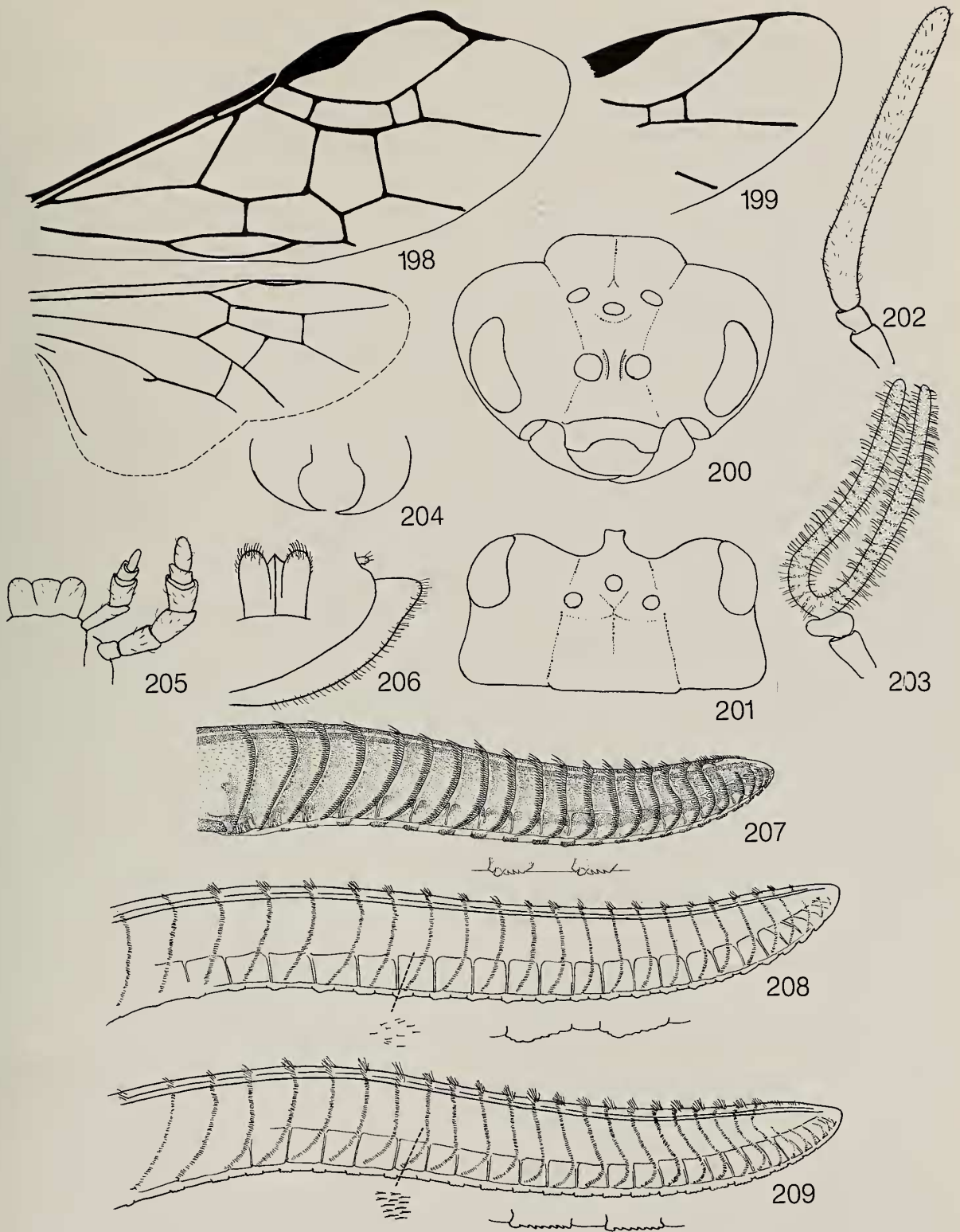
**Eriglenum fasciatum* Enderlein 1919: 117. E. "Ecuador. Cuvaray" (Warszawa, E).

Digelasinus fasciatum: Malaise 1941: 134.

Dielocerus fasciatus: Smith and Adis 1984: 720-721 (Amazonas; biological note; cocoons found on tree trunks of host a; E, M in key).

Host: a) *Sclerolobium paniculatum* (Leguminosae).

This species was recorded from Brazil (Manaos, Amazonas) by Smith and Adis (1984). The only other specimens I have seen are the holotype and one from Pucallpa, Peru, X-2-1954.



Figs. 198-209. *Dielocerus*. 198, Forewing and hindwing of *D. diasi*. 199, Forewing of *D. formosus*. 200, Front view of head of *D. diasi*. 201, Dorsal view of head of *D. diasi*. 202, Female antenna of *D. diasi*. 203, Male antenna of *D. diasi*. 204, Mandibles of *D. diasi*. 205, Palpi of *D. diasi*. 206, Female sheath of *D. diasi*. Female lancets of 207, *D. ocreatus*; 208, *D. formosus*; 209, *D. diasi*. (Figs. 208, 209, not shaded.)

formosus (Klug)—Brazil (Bahia, Espirito Santo, Minas Gerais, Pernambuco, Rio de Janeiro)

**Hylotoma* (*Schizocera*) *formosa* Klug 1834: 248. F. "Brasilien" (Berlin, F).—Sichel 1862: 119, 595, pl. 14, fig. 1 (found in house in France; cocoons from Brazil).—Norton 1867: 59.—Kriechbaumer 1884: 294.

Dielocerus formosus: Kirby 1882: 50.—Dalla Torre 1894: 322.—MacGillivray 1906: pl. 39, fig. 79 (wings).—Lima 1927: 129-134 (biological notes, nest; Pernambuco).—Lima 1927: 1366-1367 (same article).—Monte 1941: 145-146 (host a).—Lima 1960: 346.—Silva et al. 1968: 621 (Minas Gerais; host a).—Smith 1975: 373, fig. 2, 3, 7, 10, 11 (compared with *diasi*).—Smith and Adis 1984: 720-721 (in key).

Dieloceros formosus: Konow 1905a: 24, pl. 2, fig. 5 (M; syn.: *serratus* Kirby, *ellisii* Curtis).

**Dielocerus ellisii* Curtis 1844: 248, pl. 31, fig. 1-7. E, M, cocoon mass. Brazil. (London, F) (biology, social behavior).—Smith 1866: 323-324 (Catagallo, Brazil; cites Curtis' 1844 biological notes).—Kirby 1882: 50, pl. 4, fig. 1 (syn.: *curtisi* Cameron).—Dalla Torre 1894: 322.—Bischoff 1927: 181, 530, fig. 79, 80 (communal larval cocoon mass figured).

**Dielocera curtisi* Cameron 1878: 147. M. "Brazil" (London, M).

Dieloceros curtisi (!): Konow 1905a: 151 (in index only).

**Ptenus serratus* Kirby 1882: 51, pl. 4, fig. 2, 3. F, M. "Brazil. Catagallo" (London, F).

Ptenos serratus: Dalla Torre 1894: 324.

Dielocerus sp.: Parker et al. 1953: 45 (Haquaquecetuba, Brazil; parasite: *Hylotomomyia dielocera* Tns.).

Hosts: a) *Inga* sp. (Leguminosae).

Since *formosus* and *diasi* are so closely related and similar in many color features, they may have been confused in the literature. The only localities from which I have seen specimens of *formosus* are Espirito Santo, Minas Gerais, Rio de Janeiro, and Bahia. Lima (1927) recorded it from Pernambuco. I have not seen specimens to verify the identifications of Lima's (1927), Monte's (1941) and Silva et al. (1968) records from Minas Gerais. I have examined types of all the species above and found them to represent the same species. The holotype of *curtisi* Cameron is BM #1.118, a M labeled "*Dielocera* ? *curtisi* Cam. Type. Brazil." The lectotype of *ellisii* Curtis, here designated, is the F set aside as the type in London, BM #1.119; it bears only a determination label. The lectotype of *serratus* Kirby is the F set aside as type in London, BM #1.117, labeled "Braz." and with a determination label.

hyaloptera (Perty) new combination — Brazil

**Shizocera hyaloptera* Perty 1833: 130, pl. 26, fig. 6. M. "Amazonum flumen" (München, M).

Schizocerus hyaloptera: Norton 1867: 56.

Scobina hyaloptera: Kirby 1882: 40.—Dalla Torre 1894: 317.—Konow 1905a: 15.—Konow 1907a: 191.

The single male at München is hereby designated lectotype. It is labeled "3103" and "2. Brasil. Sch. hyaloptera Pty." Perty did not state how many specimens he had. I have not seen specimens resembling *hyaloptera*, it could be a color variant of another species, but I am keeping it separate until this can be resolved. The lectotype is orange with the antennal flagellum, mesonotum, and metanotum black (posterior portion of mesoprescutum and of mesoscutellum brownish), and basal plates a little darker than rest of the abdomen. The wings are hyaline with the costa whitish and the veins and stigma brownish to black.

ocreatus Smith, new species — Brazil (Mato Grosso)

Dielocerus ocreatus Smith.

Female.—Length, 9.0-11.0 mm. Entirely dull yellow orange with apex of mandible black and light blackish areas on outer surface of hindtibia, stripe on mesonotal lateral lobes, metapostnotum, and center of basal 4 or 5 abdominal terga. Wings uniformly, lightly yellowish infuscated, costa and stigma orange yellow as for body, other veins black. Antennal length subequal to head width. Clypeus with central semicircular emargination; malar space slightly less than diameter of front ocellus; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:1.0:1.4; head broadened behind eyes in dorsal view (as in Fig. 201); lower interocular distance to eye length as 2.5:2.0, eyes small and slightly covering below. Length of hindbasitarsus shorter than length of following tarsal segments combined, subequal to following 2 1/3 segments. Sheath similar to that of *diasi*, Fig. 206. Lancet as in Fig. 207.

Male.—Length, 9.0-10.0 mm. Coloration similar to that of female except outer surface of 3rd antennal segment, broad stripes on mesoprescutum and mesonotal lateral lobes, and sometimes anterolateral portion of mesoscutellum black; hindtibia orange yellow. Antennal length about 1.25X head width. Genitalia as in Fig. 212.

Holotype.—E, "Sao Felix, MT, VIII-1969, Bill Hamilton leg.," "reared from cocoon collected on 25-VII-1968, Bill Hamilton, leg." (Brasilia, IBGE). Sao Felix is in Mato Grosso State, Brazil (near Ilha do Bananal).

Paratypes.—BRAZIL: Same data as for holotype (9F, 4M) (Brasilia, IBGE; Washington).

Host.—A note with the specimens states that they were reared from a mass cocoon found on a small tree (15 to 20 ft. tall), locally called "Carvoeiro," in cerrado vegetation.

Discussion.—The yellowish wings and nearly entirely orange yellow color are unlike any other species of *Dielocerus*.

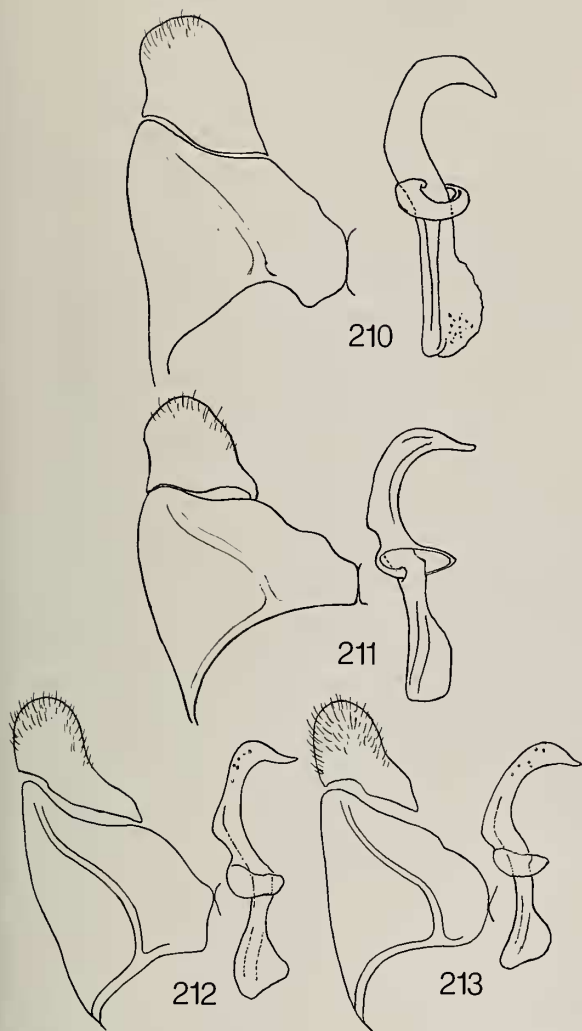
Genus DIGELASINUS Malaise

Digelasinus Malaise 1937a: 52. Type species: *Ptenus diversipes* Kirby. Orig. desig.

Antenna (Fig. 214) with 1st segment longer than broad, 2nd segment as long as broad, 3rd segment of female antenna stout, somewhat laterally flattened, usually with slight lobe at base, not much longer than head width. Clypeus with shallow, broad, semicircular emargination (Fig. 217); malar space nearly equal to diameter of front ocellus; labrum rounded; supraclypeal and interantennal area convex, without interantennal carina; eyes far apart, slightly converging below, lower interocular distance slightly greater than eye length; left mandible simple, right mandible with very small basal tooth (Fig. 216), mandibles in lateral view narrow and evenly tapering; maxillary palpus 6-segmented, shorter than eye length, labial palpus 4-segmented, labium 3-lobed (Fig. 215); head from above broadened behind eyes (as in Fig. 201). Cenchræ large and close together, separated by distance of 1/3 or less breadth of one. Forewing (similar to *Dielocerus*, Fig. 198, but antero-apical margin even) with costa narrower than intercostal area (somewhat more swollen in males than in females); intercostal crossvein (Sc) present but sometimes difficult to see in black infuscation; radial cell closed and with accessory vein at apex; 4 cubital cells with last closed cell quadrate, about as long on radius as on cubitus; no basal anal cell; distance between M and Rs+M on Sc+R equal to half length or less of vein M. Hindwing with anal cell, cell slightly longer than its petiole. Hindbasitarsus slightly shorter than remaining tarsal segments combined; tarsal claws simple.

These are large, robust, shining insects, the females about 13-15 mm long and the males about 10 mm long. The two species have dark blackish wings and are mostly black with orange or reddish only on the thorax and parts of the legs. The wings of the males are nearly hyaline with a blackish band below the stigma.

Digelasinus is close to *Dielocerus*, but is separated by the closed anal cell of the hindwing, larger lobe at the base of the flagellum of the female antenna, and



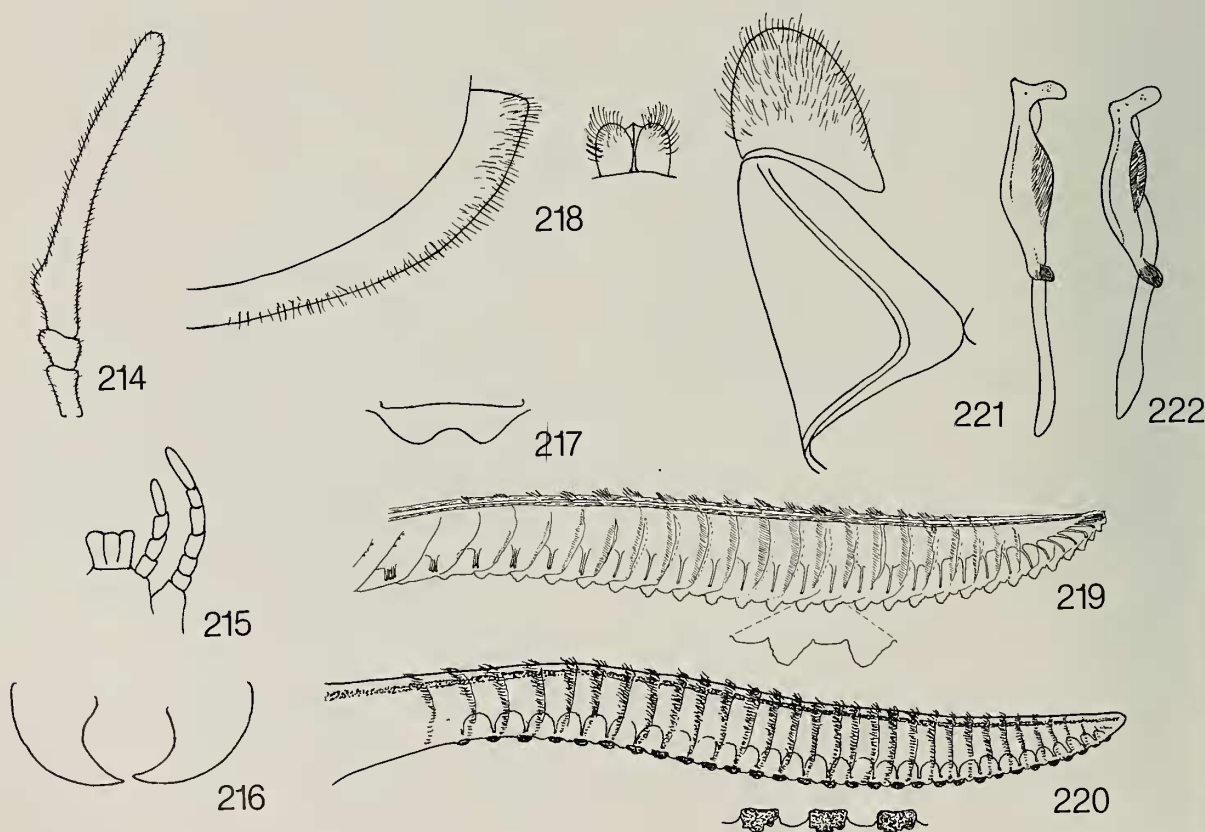
Figs. 210-213. *Dielocerus*, male genitalia. 210, *D. diasi*; 211, *D. formosus*; 212, *D. ocreatus*; 213, *D. fasciatus*.

differently shaped male genitalia (compare Figs. 210-213, 221, 222). The two species of *Digelasinus* appear to form a distinct group, and I prefer to keep the genera separate. Little is known of the biology of *Digelasinus*

except for notes by Lima (1937), Monte (1946), and some mass cocoons associated with specimens in London. Representatives are known only from Brazil, Paraguay, and Venezuela.

KEY TO SPECIES

1. Female 2
— Male 3
2. Legs with coxae, trochanters, and femora orange, tibiae and tarsi black; thorax orange, at most with black spots on posterior of mesoprescutum and anterior of mesoscutellum; lancet as in Fig. 220 *violaceus* (Kirby)
— Hindleg black; midleg with coxa orange, femur orange or black, and tibia and tarsus black; foreleg with coxa, trochanter, and femur orange, tibia and tarsus black; thorax orange with various amounts of black on mesonotum, entirely black to orange with only mesoscutellum black, with intermediates; lancet as in Fig. 219 (sheath as in Fig. 218) *diversipes* (Kirby)
3. Legs with coxae, trochanters, and femora orange, tibiae and tarsi black; mesonotum black; genitalia as in Fig. 222 *violaceus* (Kirby)
— Hindleg black; midleg black or with coxa, trochanter, and part of femur orange; foreleg as for *violaceus*; mesonotum black or black with prescutum orange; genitalia as in Fig. 221 *diversipes* (Kirby)



Figs. 214-222. *Digelasinus*. 214, Female antenna of *D. diversipes*. 215, Palpi of *D. diversipes*. 216, Mandibles of *D. diversipes*. 217, Clypeus of *D. diversipes*. 218, Female sheath of *D. diversipes*. Female lancets of 219, *D. diversipes*; 220, *D. violaceus*. Male genitalia of 221, *D. diversipes*; 222, *D. violaceus*.

SPECIES

diversipes (Kirby) — Brazil (Goiás, Minas Gerais, Pará, Pernambuco, São Paulo); Venezuela

**Ptenus diversipes* Kirby 1882: 52, pl. 4, fig. 4. F. "Amazons. Santarem" (London, F).

Ptenos diversipes: Dalla Torre 1894: 324.

Dieloceros diversipes: Konow 1905a: 24.

Dielocerus diversipes: Lima 1937: 539-541 (Minas Gerais; parasite; host a).— Monte 1946: 591 (biological note).

Digelasinus diversipes: Malaise 1937a: 52.— Lima 1960: 348 (host a; parasite).— Silva et al. 1968: 622 (Minas Gerais; araçazeiro, goiabeiro e pau pomba).

**Ptenus consors* Kirby 1882: 52, pl. 4, fig. 6. F. "East Brazil" (London, F). New synonymy.

Ptenos consors: Dalla Torre 1894: 324.

Dieloceros consors: Konow 1905a: 24.

Host: a) *Erythroxylon* sp.

A tightly packed cocoon mass is associated with specimens of this species at London. It is round, about 1.5" in diameter, and has a common covering. It is from Pernambuco. A specimen from Vicosá, Minas Gerais is labeled "occur on Myrtaceae." The holotype of *P. diversipes* is BM #1.123, and the holotype of *P. consors* is BM #1.122. I have seen other specimens from São Paulo; Rio Verde and Campinas, Goiás; Oriximiná, Pará; and Sanare, Venezuela.

violaceus (Kirby), new combination — Brazil (Goiás, Minas Gerais, Rio de Janeiro, São Paulo); Paraguay

**Ptenus violaceus* Kirby 1882: 52, pl. 4, fig. 5. F. "Brazil. Rio Janeiro" (London, F).

Ptenos violaceus: Dalla Torre 1894: 324.

Dieloceros violaceus: Konow 1905a: 24.

The holotype is BM #1.121. I have seen specimens from Varginha, s. Minas Gerais; Est. Biol. Boraceia, Salesópolis, S.P.; Serra da Bocaina, S.J. Barreiros, S.P.; Cor Paciência, Goiás; and Pirapo, Paraguay.

Genus MALLERINA Malaise

Mallerina Malaise 1941: 134. Type species: *Mallerina tricolor* Malaise. Orig. desig.

Antenna with 1st segment longer than broad, 2nd segment broader than long, 3rd segment of female antenna uniformly slender; antennal length subequal to head width. Clypeus flat, shallowly emarginated at

center; malar space less than half diameter of front ocellus; supraclypeal area convex, protuberant; interantennal ridge broadly truncate; mandibles not examined; palpi stout, shorter than eye length, labial palpus apparently 3-segmented, maxillary palpus apparently 4-segmented (as recorded by Malaise, 1942; palpi not easily observed in holotype of *tricolor*); eyes small, far apart, slightly converging below, lower interocular distance greater than eye length; head from above enlarged behind eyes. Forewing with radial cell closed, with accessory vein at apex; intercostal crossvein (Sc) present, not always distinct in black infuscation; distance between M and Rs+M on Sc+R equal to less than half length of vein M; basal anal cell absent, anal stub straight; basal crossvein Cu₁ from M+Cu₁ to 1A present (as in *Eriglenum*, Fig. 131); with 4 cubital cells. Hindwing with basal crossvein Cu₁ present; anal cell present, slightly longer than its petiole. Hindbasitarsus shorter than following segments combined; tarsal claws simple.

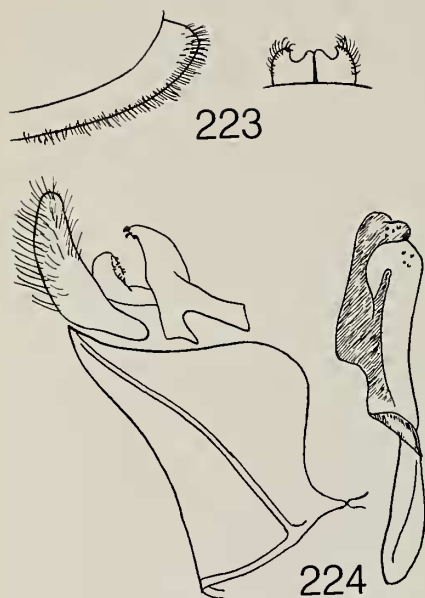
The presence of an intercostal crossvein, reduced palpi, large size (16-17 mm long), simple tarsal claws, and general habitus relates this genus to *Digelasinus*, *Topotrita*, and *Dielocerus*. *Mallerina*, however, is unique in the Dielocerinae because of the presence of a basal crossvein (Cu₁) in the wings. Additionally, *Dielocerus* lacks the anal cell in the hindwing and *Topotrita* has three cubital cells in the forewing. I have seen only the type of *tricolor*. A male from "Rio Negro, Bolivia" (at London) may be this or another species (male genitalia, Fig. 224). Though *Mallerina* is close to the ones mentioned above with an intercostal crossvein in the forewing, I prefer to keep it separate until more material is available for study.

SPECIES

tricolor Malaise — Brazil (Santa Catarina)

**Mallerina tricolor* Malaise 1941: 134. F. "Brasilien (Sta Catharina)" (Stockholm, F).— Malaise 1942: 104-105, fig. 7, 8c (F described from "Brazil, Santa Catharina, Hansa Humbolt at 60 m. altitude").— Lima 1960: 347, 348, fig. 61.

The female sheath is as in Fig. 223. The lancet was not examined. The color of the holotype is as follows: Antenna and head black, palpi yellow; thorax entirely orange; abdomen orange with apical 2 segments and sheath black; legs orange with apical midtarsal segment brownish and apex of hindtibia and entire hindtarsus black; forewing blackish, hyaline toward apex; veins and stigma black.



Figs. 223-224. *Mallerina*. 223, Female sheath of *M. tricolor*. 224, Male genitalia of *M. sp.*

Genus **PACHYLOTA** Westwood

Pachylota Westwood 1841: 24. Type species: *Pachylota audouinii* Westwood. Monotypic.

Antenna short, slightly longer than or subequal to head width; 1st segment triangular, longer than broad; 2nd segment broader than long; 3rd segment of female antenna stout, laterally flattened (Fig. 225). Clypeus with broad semicircular central emargination; labrum with semicircular central emargination (Fig. 226); each mandible simple; palpi (Fig. 227) short, maxillary palpus shorter than eye length, maxillary palpus 5-segmented with first segment short and broad and apical 2 segments slender, labial palpus 4-segmented; labium 3-lobed; malar space nearly 2X longer than

diameter of front ocellus; 2 short carinae between antennae, one adjacent to each antennal insertion; eyes small, scarcely converging, lower interocular distance nearly 2X eye length (Fig. 228); head from above very long and broadened behind eyes, length of head behind eyes equal to eye length; postocellar area about as long as 2X distance between hindocelli (Figs. 229, 230). Ventral arms of cervical sclerites broadly rounded and meeting on meson; distance between cenchri about 3/4X breadth of one. Forewing with radial cell closed, with long accessory vein at apex; intercostal crossvein present; 4 cubital cells, last closed cell as long on radius as on cubitus, quadrate; distance between veins Rs+M and M on Sc+R equal to less than half length of vein M; basal anal cell absent. Hindwing with anal cell present, longer than its petiole. Tibiae without preapical or apical spines; tarsi (Fig. 231) stout, laterally flattened, hindbasitarsus as long as following 3 segments combined; apical tarsal segment broad, with tarsal claws situated far apart; tarsal claws simple (Fig. 232).

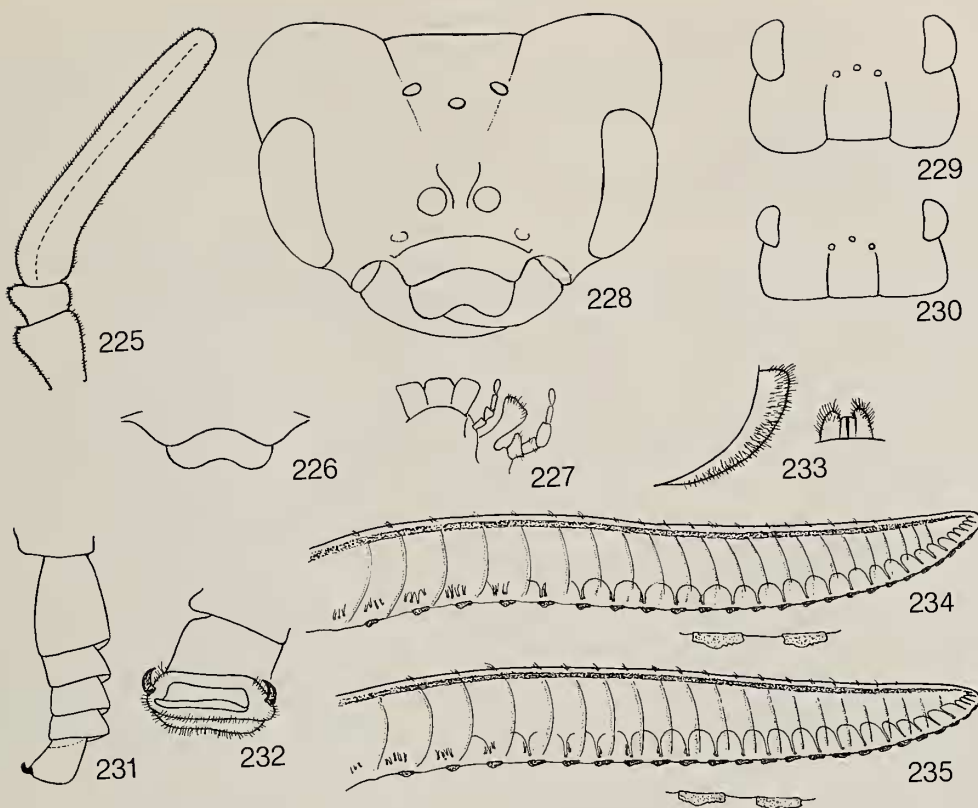
These large species (12-15 mm long) form a most unusual group in the Argidae because of the modified tarsi and lack of tibial spurs. Other characters, including the habits of the larvae which form cocoon masses, place them in the Dielocerinae and close to *Dielocerus* and *Topotrita*. Because of the modification of the legs, *Pachylota* is kept separate. The two species have the antennae, head, pronotum, and most of the legs orange, with the rest of the thorax and abdomen black. The wings are blackish infuscated with a hyaline band just apical to the stigma and a small hyaline spot below the subcosta at center.

The only published information on biology is a statement by Benson (1938) that *Pachylota* larvae are social, building a communal nest, and the female sits over and protects them (presumably the eggs and young larvae). This information may have been assumed from a cocoon mass associated with *audouinii* in the collection at London.

The genus is known only from Guyana and the Amazon Basin in Brazil.

KEY TO SPECIES

1. Head from above markedly concave behind (Fig. 229); head orange; thorax (except pronotum), abdomen, hindleg, and midtibia and midtarsus black, or midleg may be all black; lancet as in Fig. 234 (sheath as in Fig. 233). *audouinii* Westwood
- Head from above straight behind (Fig. 230); head orange with spot near ocelli and sometimes posterior margin of head blackish; thorax with at least mesosternum and lower mesepisternum orange, sometimes part of mesonotum; hindtibia and hindtarsus black, rest of legs orange; lancet as in Fig. 235. *sulcicornis* (Cameron)



Figs. 225-235. *Pachylota*. 225, Female antenna of *P. audouinii*. 226, Clypeus of *P. audouinii*. 227, Palpi of *P. audouinii*. 228, Front view of head of *P. audouinii*. 229, Dorsal view of head of *P. audouinii*. 230, Dorsal view of head of *P. sulcicornis*. 231, Tarsus of *P. audouinii*. 232, Apical tarsal segments and claws of *P. audouinii*. 233, Female sheath of *P. audouinii*. Lancets of 234, *P. audouinii*; 235, *P. sulcicornis*.

SPECIES

audouinii Westwood — Brazil (Amazonas, Pará);
Guyana

Pachylota audouinii Westwood 1841: 24, fig. E. "Habitat in Africa (tropicali?)" (London?) ("Received from Professor Audouin, Jardin des Plantes").— Brullé 1846: 667, pl. 47, fig. 6 (*audouini*).— Norton 1867: 73.— Kirby 1882: 54 ("West Africa? or South America?").— Dalla Torre 1894: 324 (Africa).— Cameron 1883: 51 (type supposed to be from West Africa - no doubt a mistake for S. America).— Konow 1905a: 23 (*Audouini*; Brazil).— MacGillivray 1906: pl. 38, fig. 77 (wings).— Benson 1938: 372, fig. 23, 31 (S. America).— Malaise 1941: 134 (Amazonas).

Host: Specimens in London from Pará bear a label "on Mahea sp."

Westwood apparently thought this species was from Africa, but if the original specimen was taken in a botanical garden, its origin would be doubtful. One specimen in London is labeled "Afric. Trop." A cocoon

mass in which many cocoons are arranged perpendicular to the substrate and are covered by a common shelter is associated with specimens from Pará (at London). The host on these specimens, *Mahea*, is apparently not a New World plant.

I have seen other specimens from Guyana (British Guiana, Potago Rd.) and Brazil (Nova Olinda, Rio Purus; S. Gabriel, Rio Negro, Amazonas; Itaituba).

sulcicornis (Cameron), new combination — Brazil
(Pará)

**Dielocera sulcicornis* Cameron 1878: 145-146. F. "Prainha, Lower Amazons" (London, F).

Ptenus sulcicornis: Kirby 1882: 51.

Ptenos sulcicornis: Dalla Torre 1894: 324.

Dieloceros sulcicornis: Konow 1905a: 24.

The holotype is BM #1.124. I have seen one other specimen, that from Santarem, Brazil.

Genus **THEMOS** Norton

Themos Norton 1867: 36, 58-59. Type species: *Themos hyaline*

Norton. Desig. by Rohwer 1911a.

Themus Schulz 1906: 84. Emendation.

Adiarnia Enderlein 1919: 119. **New synonymy.** Type species:

Adiarnia semiadusta Enderlein. Orig. desig.

Antenna short, not more than 1 1/3X head width; 1st segment longer than broad; 2nd segment broader than long; 3rd segment of female antenna laterally compressed, slightly increasing in width toward apex, apex rounded (Fig. 237). Clypeus truncate to subtruncate, about 2X broader than long; labrum truncate; malar space subequal to or slightly less than diameter of front ocellus; mandibles "inflated," bulbous and very large at base tapering to narrow apex in lateral view (Fig. 239); right mandible with tooth near base, left mandible simple or 1 or 2 crenulations near center (Fig. 240); palpi short, less than eye length, maxillary and labial palpi each 3-segmented, with labial palpus subequal to or longer than maxillary palpus, labium simple, without lobes (Fig. 241); eyes small, far apart, scarcely converging below, lower interocular distance about 2X eye length (Fig. 238); head from above enlarged behind eyes, postocellar area long, convex. Forewing (Fig. 236) with radial cell open to faintly closed (R may be faint thus cell sometimes appearing open) with long accessory vein at apex; costa narrower than intercostal area; no intercostal crossvein (Sc); distance between M and Rs+M on Sc+R half or less length of vein M; 3 cubital cells, the last closed cell about as long on radius as on cubitus; small basal anal cell present (forewing of male with costa about as broad as intercostal area). Hindwing (Fig. 236) with anal cell present, of various lengths. Hindbasitarsus

about as long as remaining tarsal segments combined. Each tarsal claw with inner tooth and basal lobe (Figs. 242, 243), or only foreclaw with inner tooth and basal lobe and mid- and hindclaws simple each with basal lobe.

These are large, plump species, mostly 9-15 mm long. Many are orange or orange and black with the forewing hyaline or darkly black infuscated and the apex beyond the stigma hyaline. The enlarged mandibles and reduced palpi with the labium lacking lobes are distinctive for *Themos* though the mandibles of a few genera such as *Durgoa* approach them in size.

Malaise (1955) gave a key to *Themos* and (1949) a key to *Adiarnia*. *Adiarnia* included those species with the foreclaw bifid and the mid- and hindclaws simple with a basal lobe, and *Themos* included those species with each tarsal claw bifid. However because of the similarity of mandibles, palpi, and other characters including those of the lancet and male genitalia, I believe all the species included belong to one unit. The male is known for only two species, thus unassociated males may not be correctly identified using the following key. Coloration of sexes, where both are known, is very different.

The biology of one species, *olfersii*, was studied in detail by Dias (1975). He discussed the maternal care of the eggs and larvae by the female and gregarious feeding habits of the larvae. The larvae form cocoons in the soil under the host plant, but it is not known if they cocoon together or not. The cocoon site differs from that of other Dielocerinae which form mass cocoons on tree or shrub trunks and have a communal covering.

Representatives of *Themos* occur from Venezuela and Surinam south to Bolivia and southern Brazil.

KEY TO SPECIES

1. Wings hyaline (each tarsal claw with small or large inner tooth) 2
- Forewing dark black to purplish, apex of wing beyond stigma hyaline 4
2. Yellow, with 3rd or 2nd and 3rd antennal segments, extreme apices of tibiae, and veins (Sc+R, M, M+Cu, 1A, cu-a, Cu₁b, and apex of Rs) in basal half of forewing black (specimen from Venezuela has mesosternum black, apex of stigma black, and most of tarsal segments 2-4 black) *laqueatus* (Enderlein) (F)
- Black and orange, at least dorsum of head, mesonotum, and apex of abdomen black, veins and stigma black. . . . 3
3. Mesopleuron and mesosternum orange; abdomen orange with apex black; legs orange *nigronotum* Malaise (M)
- Mesopleuron and mesosternum black; abdomen black with basal 2-3 sterna orange; legs whitish with apical 4 tarsal segments, extreme apices of tibia, mid- and hindfemora except extreme apices, and coxae and inner surface and apical 1/3 of outer surface of forefemur black (male genitalia as in Fig. 254) *olfersii* (Klug) (M)
4. Abdomen orange 5
- Abdomen black 8

5. Foretarsal claw with inner tooth (Fig. 242), mid- and hindtarsal claws simple with only basal lobe (Fig. 243); midclaw sometimes with minute inner tooth **6**
- Each tarsal claw with inner tooth and basal lobe (Fig. 242) **7**
6. Apical tarsal segment pale, rest of tarsi black or with black stripe on inner surface; 3rd antennal segment with yellowish-brown pubescence; apex of stigma yellow *semiadusta* (Enderlein) (F)
- Tarsi black, only hindbasitarsus with pale stripe on outer surface at base; 3rd antennal segment with black pubescence; stigma entirely black *vigilax* (Malaise) (F)
7. Sheath orange; body orange; tibiae brownish; about 15 mm long; lancet as in Fig. 249 *boliviensis* Smith (F)
- Sheath black; body yellowish; tibiae lined with black above, yellow below; about 9 mm long; lancet as in Fig. 251 (sheath as in Fig. 246) *ochreus*, new species (F)
8. Legs orange, or with only apical 1/5 of tibiae and entire tarsi black **9**
- Mid- and hindlegs black or entire tibiae and tarsi black **10**
9. Legs entirely orange, or extreme apices of tibiae, apices of basitarsi, and apical 4 tarsal segments blackish; abdomen black ventrally; metanotum black; foretarsal claw with inner tooth (Fig. 242), mid- and hindtarsal claws simple with only basal lobe (Fig. 243); lancet as in Fig. 250, sheath as in Fig. 245 *surinamensis* (Klug) (F)
- Apical 1/5 of tibiae and entire tarsi of mid- and hindlegs black, those of foreleg black only on inner surface; basal abdominal sterna orange; metanotum orange; each tarsal claw with inner tooth and basal lobe (Fig. 242); lancet as in Fig. 248, sheath as in Fig. 247 *olfersii* (Klug) (F)
10. Legs with apices of femora and tibiae and tarsi entirely black (each tarsal claw with inner tooth and basal lobe, Fig. 242; lancet as in Fig. 252; sheath as in Fig. 244; male genitalia as in Fig. 255) *malaisei*, new species (F, M)
- Mid- and hindlegs, except for trochanters, black; foreleg with most of tibia and entire tarsus black **11**
11. Foretarsal claw with small inner tooth (Fig. 242), mid- and hindtarsal claws simple, only with basal lobe (Fig. 243) *similis* Mocsáry (F)
- Each tarsal claw with a long inner tooth and basal lobe (Fig. 242) (lancet as in Fig. 253). *concinnus* Mocsáry (F)

SPECIES

boliviensis Smith — Bolivia

**Themos boliviensis* Smith 1975: 375, fig. 21. F. "Rosario, Lake Rogagua, Bolivia" (Washington, F).

The lancet and structural characters are similar to those of *malaisei*, only the coloration differs between the two. This could be a color variety, but variation was not evident in series of *malaisei* studied.

concinnus Mocsáry — Peru

**Themos concinnus* Mocsáry 1909: 8. F. "Peru: Pachitea" (Budapest, F).— Malaise 1955: 116.

One specimen other than the holotype has been examined, that a F from "El Campamiento, Peru."

hyaline Norton

Themos hyaline Norton 1867: 58. M. "Pennsylvania. One male. This came from the Smithsonian Institute and is marked Pennsylvania, but is probably from Mexico or South America." (lost ?).— Dalla Torre 1894: 318.— Konow 1905a: 27.— Malaise 1955: 116 (? syn. of *olfersii*).— Smith 1971a: 524 (holotype not located).

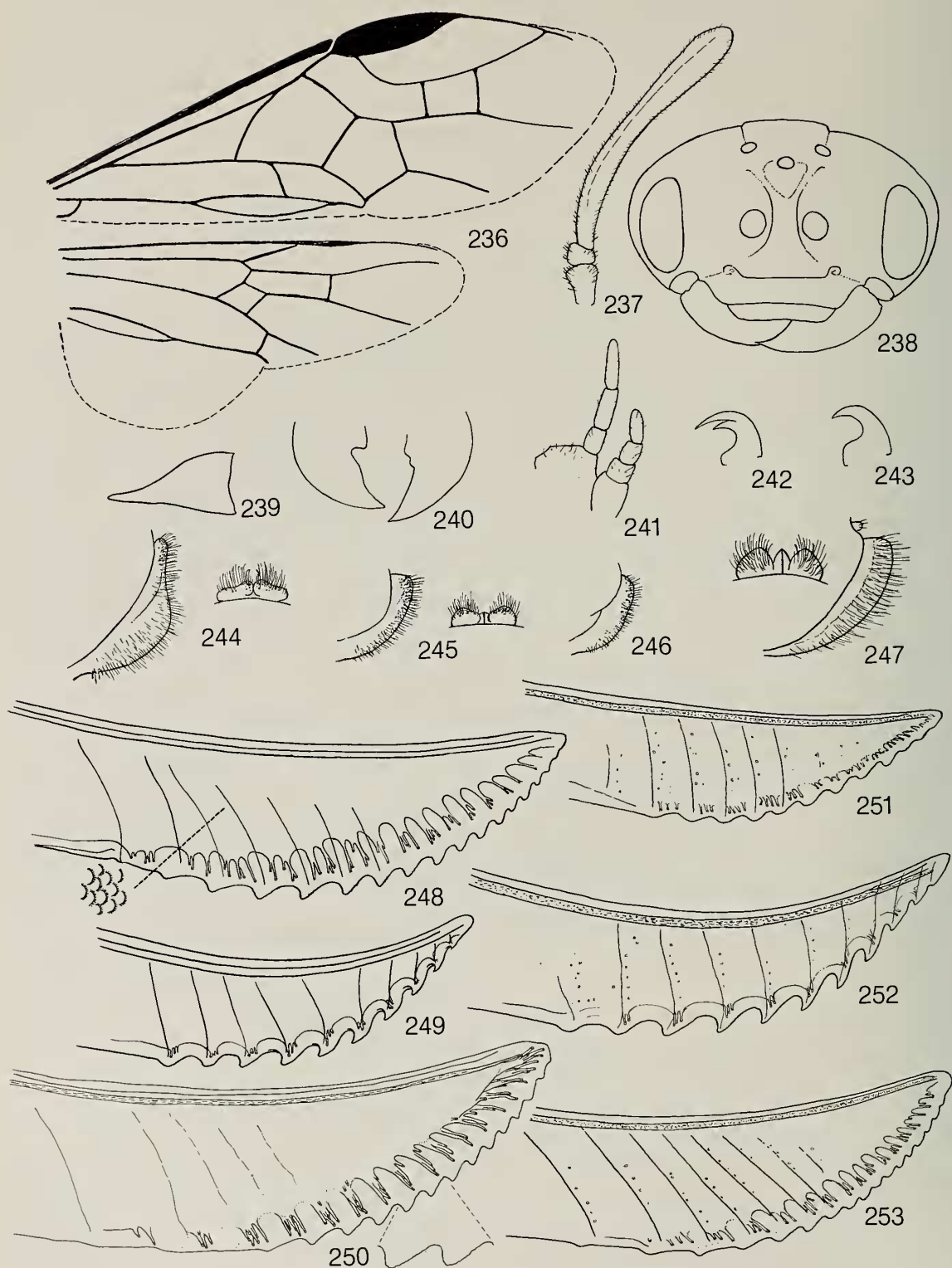
Norton described a male, and the coloration he gives is similar to that of females of *concinnus* and *similis*, but the males of those species are not known. Norton's species cannot be placed until more information on males is available. Most *Themos* are known from females only. This species is not included in the key.

laqueatus (Enderlein) - Ecuador; Venezuela

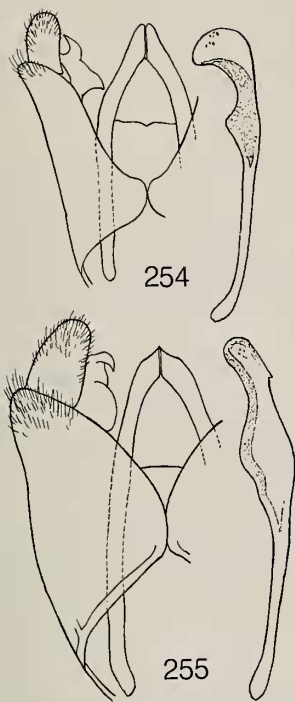
**Themos laqueatus* Enderlein 1919: 118-119. F. "Ecuador. Baños" (Warszawa, F).

Themos laqueatus: Malaise 1955: 116.

Enderlein examined "2 F", and both are at Warszawa. Both are labeled "Baños (Ecuad.) R. Haensch S.", one with the label "Type" the other "Co=Typus". The specimen labeled type is hereby designated lectotype, the other is a paralectotype. A female from Tabay, Venezuela (Townes Coll.) is similar to the types but has most of the second antennal segment orange, the mesosternum black, the apex of the stigma black, and the extreme apices of the basitarsi and most of tarsal segments 2-4 black. As I could not find structural differences, I regard this as a color variant.



Figs. 236-253. *Themomys*. 236, Forewing and hindwing of *T. malaisei*. 237, Female antenna of *T. malaisei*. 238, Front view of head of *T. malaisei*. 239, Side view of mandibles of *T. malaisei*. 240, Mandibles of *T. malaisei*. 241, Palpi of *T. malaisei*. 242, Tarsal claw of *T. malaisei*. 243, Tarsal claw of *T. surinamensis*. Female sheaths of 244, *T. malaisei*; 245, *T. surinamensis*; 246, *T. ochreus*; 247, *T. olfersii*. Female lancets of 248, *T. olfersii*; 249, *T. boliviensis*; 250, *T. surinamensis*; 251, *T. ochreus*; 252, *T. malaisei*; 253, *T. concinnus*.



Figs. 254-255. *Themos*, male genitalia. 254, *T. olfersii*; 255, *T. malaisei*.

malaisei Smith, new species — Bolivia; Brazil
(Goias, Mato Grosso, São Paulo)

Themos olfersii: Malaise 1955: 116 (misidentification).

Themos malaisei Smith.

Female.—Length, 14.0-17.0 mm. Antenna with 1st segment orange, 2nd segment usually with basal 1/2 orange, apical 1/2 black, 3rd segment black. Head and thorax orange, only metanotum black but dark orange at center. Legs orange; foreleg with black stripe on outer surface of tibia and first 4 tarsal segments; mid- and hindlegs with extreme apices of femora, tibiae entirely, and first 4 tarsal segments black; apical tarsal segments brownish, paler than black preceding segments. Abdomen black. Wings black to purplish to apex of stigma, apex beyond apex of stigma hyaline; veins and stigma black. Antennal length to head width as 5.4:5.5. Lower interocular distance to eye length as 3.3:1.7; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:0.7:1.2. Length of hindbasitarsus to remaining tarsal segments combined as 2.6:2.5. Sheath thick, scopae blunt (Fig. 244). Lancet short, with deep serrulae and with annuli distinct and protruding (Fig. 252).

Male.—Length, 11.0:13.0 mm. Coloration similar to that of female. Genitalia as in Fig. 255.

Holotype.—E, "São Paulo, Ypiranga, XII-32, 22.147" (São Paulo).

Paratypes.—BOLIVIA: Santiago, Santa Cruz, 8/13-II-1958, Monros (3 F). BRAZIL: Same data as for holotype (4 F, 2 M); same data as for holotype except XII-31 (1 F, 1 M); S. Paulo, XII-02, M. Beron lg. (1 F); S. Paulo, Ypiranga, Lange de Morretes, Coll. 1-II-1937 (1 F); Barueri, São Paulo, 3-II-1962, K. Lenko col. (with portion of leaf with eggs on surface) (1 F); Utiariti, Rio Papagaio Mato Grosso, 1-12.XI.1966, Ko and Pereira (1 F); "22 147" (probably same as type locality) (2 F); Annapolis, Goiaz, XII-29-35, G. Fairchild, collector (1 F) (São Paulo, Cambridge, Tucumán, Washington).

Host.—According to Dias (personal correspondence), *Luehea* sp. (Tiliaceae).

Discussion.—Those specimens from the type locality also have a determination label "Parasyzygonia cyanoptera Kl.", but that species is in the Pergidae. Also the last line on the locality label is handwritten and illegible.

This species has been confused with *olfersii*, no doubt due to their similar coloration. However, *olfersii* has most of the tibiae orange, and the males are colored differently than the females and have hyaline wings. In *malaisei*, the tibiae are black and the males are colored similar to the females. The genitalia are also distinct as shown in Figs. 248, 252, 254, 255. The species in Malaise's (1955) key is *malaisei*, not *olfersii*.

nigronotum Malaise — Brazil (Minas Gerais)

**Themos nigronotum* Malaise 1955: 116. M. "Brazil (Minas Gerais)" (Stockholm, M).

This is possibly the male of another species. I have seen only the holotype. It is orange with the antenna, head, mesonotum, and apex of abdomen black; wings hyaline to lightly, uniformly blackish infuscated.

ochreus Smith, new species - Ecuador; Peru

Themos ochreus Smith.

Female.—Length, 9.0 mm. Antenna with 1st and 2nd segments yellow, 3rd segment black. Head, thorax, and abdomen yellow. Legs yellow with black stripe on full length of outer surfaces of fore- and midtibiae and tarsi, outer surface of extreme apex of hindtibia and hindtarsus entirely black; apical tarsal segments brownish, paler than preceding segments. Sheath black.

Forewing blackish to about middle of stigma, hyaline from middle of stigma to apex of wing; hindwing lightly infuscated, hyaline apically; veins and stigma black. Antennal length to head width as 3.5:3.0. Lower interocular distance to eye length as 2.9:1.3; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.4:0.5. Length of hindbasitarsus to remaining tarsal segments combined as 1.6:1.4. Each tarsal claw with small inner tooth and basal lobe. Sheath with blunt scopae (Fig. 246). Lancet short, serrulae shallow (Fig. 251).

Male.—Unknown.

Holotype.—E, "Upper R. Pachitea, Peru, Jul 21, '30, Cornell U. Exped., Cornell U. Lot 569, Sub. 264" (Ithaca).

Paratype.—ECUADOR: Compana Cocha, 8-8-84 (1 E) (Onore Coll.).

Discussion.—The coloration of *ochreus* is almost identical to that of *semiadusta* except for the black sheath. In *ochreus*, each tarsal claw has an inner tooth, the sheath is narrow in dorsal view, and the size is much smaller (9-11 mm vs. 13 mm). The Ecuador specimen also has a black outer stripe on the hindtibia, but only the 1st antennal segment is yellow, and its length is about 11 mm. It is otherwise the same as the holotype.

olfersii (Klug) — Brazil (D.F., Goiás, Mato Grosso, São Paulo)

**Hylotoma* (*Schizocera*) *olfersii* Klug 1834: 249. E. "Brasilien" (Berlin, E).—Kriechbaumer 1884: 295.

Themos olfersii: Norton 1867: 58.—Kirby 1882: 44.—Dalla Torre 1894: 319.—Konow 1905a: 27 (*Olfersi*).—Malaise 1955: 116 (*hyaline* Norton a possible syn. [*olfersii* in Malaise's key is actually the species here described as *malaisei*, at least in part]).—Smith 1975: 374-375 (E, M; host a).—Dias 1975: 401-432 (biology; maternal care, gregarious behavior of larvae; D.F.; host a).—Smith 1981: 287 (D.F. records).

Host: a) *Eriothea pubescens* (Bombacaceae)

Two females of *olfersii* are at Berlin, both labeled "13727" and "Brasil. v. Olfers." The specimen with the large green determination label is here designated lectotype, the other with a small white label "*olfersii*" is a paralectotype. I have seen several specimens with a leaf associated on the same pin each bearing 30-50 eggs on the surface. Dias (1975) gave an excellent account of the biology, habits, and behavior of this species.

semiadusta (Enderlein), **new combination** — Ecuador

**Adiernia semiadusta* Enderlein 1919: 119-120. E. "Ecuador. Balzapamba" (Warszawa, E).

I have seen only the holotype. It is about 13 mm long, orange with the antenna, inner surfaces of fore- and midtibiae, apex of hindtibia, and inner surfaces of first four tarsal segments black; apical tarsal segments yellow; forewing black with apex beyond stigma hyaline.

similis Mocsáry — Brazil (Amazonas, Pará); Peru

**Themos similis* Mocsáry 1909: 8. E. "Brasilia: Manaos ad Amazonas" (Budapest, E).

Adiernia surinamensis similis: Malaise 1955: 117.

Other than the holotype, I have seen specimens from Guajara, Mu. Ananindeua, Pará, Brazil, and Tingo Maria, Peru.

surinamensis (Klug) — Brazil (Goiás, Pará); Ecuador; Surinam; Venezuela

**Hylotoma surinamensis* Klug 1814: 307. E. "Surinam" (Berlin, E).—Klug 1834: 249.—Kriechbaumer 1884: 73, 295.

Themos surinamensis: Norton 1867: 58.—Kirby 1882: 44.—Dalla Torre 1894: 319.—Konow 1905a: 27.

Adiernia surinamensis: Malaise 1949: 4.—Malaise 1955: 116.

Host: A specimen from Venezuela bears a label "reared from larva on *Ceiba pentandra*", 2 others "ex leads of 'cremon' *Thespesia populnea* (L.) Soland." Fernandez-Yepéz (personal correspondence) stated that he observed larvae feeding on *Ceiba pentandra* in Venezuela but egg laying was on *Thespesia populnea* and no larval feeding was observed on the latter.

Three E of *surinamensis* are at Berlin, each labeled "13726" and "Surinam, Cordua". The specimen with the large green determination label is hereby designated lectotype, the other two with a white label "*surinamensis*" are paralectotypes.

vigilax (Malaise), **new combination** — Brazil (Rio de Janeiro)

**Adiernia vigilax* Malaise 1949: 2-3, 4, pl. I. E. "Brazil, Est. Rio de Janeiro, Nova Friburgo, 900 m" (Stockholm, E).

From Malaise (1949): "Females sitting on underside of leaf in which they deposited 68 and 87 reddish

yellow eggs, respectively. Even in death the females tried to protect their eggs with their bodies." Part of a leaf with eggs on the surface are on the same pin as the holotype.

Genus **TOPOTRITA** Kirby

Topotrita Kirby 1882: 48. Type species: *Hylotoma leucocephala* Klug. Monotypic.

Antenna with 1st segment longer than broad; 2nd segment broader than long; 3rd segment of female antenna laterally compressed, rounded at apex (Fig. 257); antennal length not much more than head width. Malar space distinct, equal to or more than diameter of front ocellus; clypeus truncate, about 2 1/2X broader than long; labrum rounded; both mandibles simple (Fig. 261), slender in lateral view but slightly enlarged at extreme base (Fig. 260); eyes small, scarcely converging below, lower interocular distance greater than eye length (Fig. 257); palpi (Fig. 262) short, maxillary palpus shorter than eye length, maxillary palpus 5-segmented, labial palpus 4-segmented, each uniformly slender, labium 3-lobed; head from above enlarged behind eyes, postocellar area slightly broader than long. Cenchri large and close together, separated by distance of less than half the breadth of one; ventral arms of cervical sclerites broadly rounded on meson and nearly meeting (Fig. 263). Forewing (Fig. 256) with radial cell closed, with accessory vein at apex;

costa narrower than intercostal area; intercostal vein (Sc) present; basal anal cell absent; 3 cubital cells, vein 2r-m absent (which normally encloses the 3rd cubital cell) thus the last closed cell (2nd cubital cell) 2X longer than broad and about as long above as below; distance between veins M and Rs+M on Sc+R short, less than half length of vein M. Hindwing with anal cell present, nearly twice as long as its petiole. Length of hindbasitarsus shorter than length of remaining tarsal segments combined; tarsal claws simple.

These are large, plump sawflies, 10-16 mm long, and all have the head, pronotum, and usually the forelegs orange contrasting with the black, shining remaining parts of the thorax and abdomen. The wings are uniformly, darkly, black infusated. Diagnostic features are the lack of vein 2r-m in the forewing, truncate clypeus, simple mandibles, small eyes, head broadened behind the eyes in dorsal view, and the presence of the anal cell in the hindwing.

The species included are those that were separated by Malaise (1955). So few specimens are available (I have seen about 8 including the types) that it is impossible to determine if the sculpturation of the head is constant and valid for species separation. I have seen only one male, that being the one Malaise described as *malleri*.

Nothing is known of the biology. The genus is distributed from northern South America south to Peru and southeastern Brazil.

KEY TO SPECIES

1. A narrow, deep, complete horizontal furrow in back of ocelli separating ocelli from postocellar area (lancet as in Fig. 266, with annuli close together and serrulae close together separated by a distance equal to half or less the width of a serrula; sheath as in Fig. 265). *weyrauchi* Malaise
- Without furrow in back of ocelli, postocellar area blending in with ocellar basin without interruption or a short transverse furrow only immediately behind each ocellus. **2**
2. In profile, head appearing flattened and elongated behind (Fig. 258); larger, 14-16 mm long (lancet with annuli farther apart, serrulae farther apart than *weyrauchi*, Fig. 266, separated by distance equal to the width of a serrula) *leucocephala* (Klug)
- In profile, head rounded, not appearing elongated behind (Fig. 259); smaller, female 13 mm long, male 10 mm long *malleri* Malaise

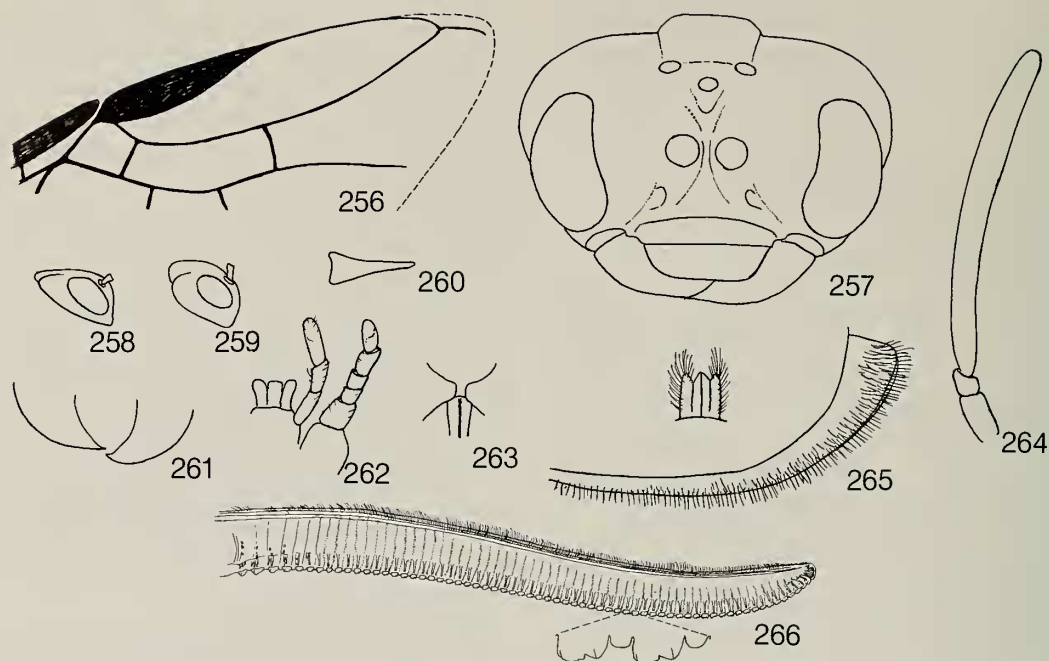
SPECIES

leucocephala (Klug) - French Guiana; Guyana; Surinam

**Hylotoma leucocephala* Klug 1834: 248. F. "Cayenne" (Berlin, E).— Spinola 1840: 132-133 (Cayenne, E).— Norton 1867: 59.— Kriechbaumer 1884: 295.

Topotrita leucocephala: Kirby 1882: 48.— Dalla Torre 1894: 321.— Konow 1905a: 23.— Malaise 1937a: 52-53 (M; Cayenne, Santa Catarina [specimen later described as *malleri*]).— Benson 1930: 620 (British Guiana).— Malaise 1955: 100.

I have seen specimens from Surinam, French Guiana, and the specimen Benson recorded from Guyana.



Figs. 256-266. *Topotrita*. 256, Apex of forewing of *T. weyrauchi*. 257, Front view of head of *T. weyrauchi*. 258, Side view of head of *T. leucocephala*. 259, Side view of head of *T. malleri*. 260, Side view of mandible of *T. leucocephala*. 261, Mandibles of *T. leucocephala*. 262, Palpi of *T. weyrauchi*. 263, Cervical sclerites of *T. weyrauchi*. 264, Female antenna of *T. weyrauchi*. 265, Female sheath of *T. weyrauchi*. 266, Female lancet of *T. weyrauchi*.

malleri Malaise — Brazil (Santa Catarina)

Topotrita leucocephala: Malaise 1937a: 52-53 (in part).

**Topotrita malleri* Malaise 1955: 100. F, M. "Brazil (Santa Catharina, Hansa Humbolt, 60 m., lowland)" (Stockholm, F).

I have seen only the two specimens Malaise described.

weyrauchi Malaise — Brazil (Pará) ?; Peru; Venezuela

**Topotrita weyrauchi* Malaise 1955: 100. F. "Peru (Valle Chanchamayo, 800 m)" (Stockholm, F).

I saw one specimen from Paraitepny, Bol., Venezuela. A specimen from Santarem, Brazil, is similar to *weyrauchi*, but it is smaller and the serrulae of the lancet are slightly farther apart than those of *weyrauchi* (Fig. 266). I provisionally refer this specimen to *weyrauchi*.

Subfamily STERICTIPHORINAE

Sterictophorinae (!) Benson 1938: 375.— Benson 1963: 637 (in part)

Ptiliini Benson 1938: 375

Sterictiphorini Benson 1938: 376 (in part)

Sericocerini Benson 1938: 376 (in part)

Trichorhachinae Benson 1938: 373

Trichorhachini Benson 1963: 634.

Antennal flagellum of male bifurcate (Fig. 273). Head with or without interantennal carina, without genal and other facial carinae. Antennal insertions on head located near or below level of middle of eyes (Figs. 268, 389, 496, 620). Maxillary palpus 6-segmented, labial palpus 4-segmented; labium 3-lobed; 3rd or 2nd and 3rd segments of labial palpus and 4th segment of maxillary palpus sometimes enlarged (Figs. 271, 343, 344, 392, 393, 500, 538-540, 624). Left mandible simple or with small crenulations or teeth near center; right mandible with basal tooth (Figs. 270, 342, 391, 499, 536, 537, 623). Pronotum without diagonal furrow. Cenchri closer together than half breadth of one. Forewing (Figs. 267, 338, 388, 495, 532, 533, 619) without intercostal crossvein (Sc); costa narrower to broader than intercostal area; vein 1r joins base of stigma, apical to junction of stigma and Sc+R; veins M and Rs+M join Sc+R far apart, distance between them

on Sc+R usually half or more length of vein M; radial cell open or closed at its apex. Hindwing (Figs. 267, 338, 388, 495, 532, 533, 619) with radial cell open; anal cell present or absent. Wings without basal crossvein Cu_1 between M+ Cu_1 and 1A. Mid- and hindtibiae without preapical spines; foretibial spurs subequal in length; tarsal claws simple (simple with basal lobe in *Acrogymnidea*, Fig. 294; with long inner tooth in *Neoptilia*, Fig. 469).

This is a large and diverse subfamily, but I see no reason to attempt to further subdivide it. Some further groupings are suggested based on the size of the eyes, head shape, interantennal carina, differences in the maxillary and labial palpi, and general pattern of the female lancets and male genitalia, but there are too many gradations between extremes to form stable units. Though some wing venational differences are convenient for separating some genera and for use in the key (e.g., open or closed radial cell of the forewing, presence or absence of the anal cell of the hindwing), I do not believe they are useful for forming suprageneric categories. They have been relied on too heavily by past workers. Some genera, and even species, have differences in wing venation, and complete reliance on wing venation would separate closely related species.

Benson (1938) provisionally divided this subfamily into the tribes Ptilini, Topotritini, Sterictiphorini, and Sericocerini by the open or closed radial cell of the forewing (Benson mentioned hindwing, but this must have been a mistake) and whether or not the hindcoxae were contiguous or well separated. Some genera in these tribes are here placed elsewhere, those in the Sericocerini in Erigleninae and *Topotrita* in Dielocerinae. Benson (1963) placed everything in the Sterictiphorinae except for those genera in the Arginae and Zenarginae, and noted several tribes. Most of what he included in the Sterictiphorini, except *Eriglenum*, are here included in the Sterictiphorinae.

Key characters for the Sterictiphorinae are the furcate male antennal flagellum, lack of preapical tibial spines, lack of an intercostal vein in the forewing, vein 1r of the forewing joining the stigma, commonly swollen costa of the forewing, absence of basal crossvein Cu_1 , usually simple tarsal claws, normal palpi with the maxillary palpus 6-segmented and labial palpus 4-segmented, and the mandibles (left mandible simple or nearly so, right mandible with basal tooth or ridge).

So far as is known, social habits are not developed, and larvae do not form cocoon masses.

Genus *ACROGYMNIA* Malaise

Hemigymnia Malaise 1937a: 54. Preoccupied by *Hemigymnia* Arnaud 1898. Type species: *Hemigymnia pusilla* Malaise. Orig. desig.

Acrogymnia Malaise 1941: 140. New name for *Hemigymnia* Malaise.

Antenna slender, 1st segment longer than broad, 2nd segment longer than broad, 3rd segment of female antenna tapering to apex, usually rounded (Fig. 272). Eyes large, converging below, lower interocular distance less than eye length (Fig. 268); head from above sharply narrowing behind eyes, postocellar area short, much broader than long (Fig. 269); malar space linear; high sharp carina between antennae, Y-shaped above antennae and lower arm usually bisecting supraclypeal area to clypeus (Fig. 268); left mandible simple or with 1 or 2 small crenulations or teeth at center, right mandible with basal tooth (Fig. 270); palpi as long as eye length, labial palpus may have 2nd and/or 3rd segments enlarged, maxillary palpus usually with segments uniformly slender (Fig. 271). Mesoscutellum flat, in some species sides extended laterally as carinae. Forewing (Fig. 267) with costa swollen, equal to or broader than intercostal area, radial cell open at apex; small basal anal cell present; 3 or 4 cubital cells, the last closed cell broader than long and about as long on cubitus as on radius; distance between M and Rs+M on Sc+R equal to about 1/2-3/4 length of vein M. Hindwing (Fig. 267) usually with anal cell, cell shorter than or equal to its petiole. Length of hindbasitarsus equal to or longer than length of following tarsal segments combined; tarsal claws simple.

Malaise gave a key to species in 1955, but the genus is larger than he indicated. Relevant characters for separation of *Acrogymnia* are the high, sharp, Y-shaped interantennal carina, large eyes which converge below and the lower interocular distance shorter than the eye length, open radial cell of the forewing, quadrate third cubital cell of the forewing, presence of an anal cell in the hindwing (except *acella*), and the palpi which are uniformly slender or only with the third or second and third segments of the labial palpus enlarged. It is close to *Acrogymnidea*, but *Acrogymnidea* has a basal lobe on the tarsal claws. It may also be confused with *Hemidianeura* and *Manaos*, but those two genera have the radial cell of the forewing closed and the interantennal carina is not as pronounced or Y-shaped.

Hosts and biologies are not known. The genus is known from Costa Rica south to northern Argentina.

KEY TO SPECIES

1. Thorax red, in several males some black on anterior half of mesoprescutum and posterior margins of mesonotal lateral lobes (abdomen orange with apical 3-4 segments black; legs orange with foretarsus and mid- and hindtibiae and tarsi black; lancet as in Fig. 282; sheath as in Fig. 280; male genitalia as in Fig. 291) *rufina* Malaise
- Thorax black or at least with mesosternum and part of mesepisternum black, usually some black on lobes of mesonotum 2
2. Abdomen orange with apical 2-4 segments black and sometimes black laterally on segments 2-4, basal plates may be black 3
- Abdomen black or with only basal sterna orange or 1st and 2nd segments brownish 4
3. Legs orange, apices of fore- and midtarsi black, apex of hindtibia and usually all hindtarsus black; mesonotum mostly black except apex of scutellum; lancet as in Fig. 283, with serrulae rounded and annular spines numerous; sheath as in Fig. 278 (male genitalia as in Fig. 289) *scutimacula* Malaise
- Legs black with forefemur and tibia and midtibia mostly orange; mesonotum with black on anterior portion of prescutum and most of scutellum; lancet as in Fig. 284, without lateral spines and serrulae flat; sheath as in Fig. 281 *diamantinensis* Malaise
4. Legs black, at most with whitish on foretibia or whitish on some coxae 5
- Legs orange or white and black 8
5. Hindwing without anal cell; parapteron orange (lancet as in Fig. 287, with short annular spines; male genitalia as in Fig. 293) *acella*, new species
- Hindwing with anal cell; parapteron black 6
6. Thorax black with only pronotum and tegula red (lancet as in Fig. 285; sheath as in Fig. 275; male genitalia as in Fig. 288) *imbogea* Smith
- Thorax also with some red on mesonotum 7
7. Pronotum red, upper portion of mesepisternum red, mesonotum red with scutellum black (lancet as in Fig. 286; sheath as in Fig. 277; male genitalia as in Fig. 290) *palama*, new species
- Pronotum black, mesepisternum black, mesonotum mostly red with anterior portion of prescutum black *transtillata* (Konow)
8. Thorax black or black with tegula and pronotum brownish 9
- Thorax with mesepisternum, tegula, or pronotum reddish 10
9. Pronotum and tegula black *pauvilla* (Konow)
- Pronotum and tegula dark brownish (sheath as in Fig. 276) *pusilla* (Malaise)
10. Thorax black with lower half of cervical sclerites, lateral pronotum, upper mesopleuron, and tegula orange; legs orange with mid- and hindtibiae and tarsi black; wings hyaline, costa and stigma amber (male genitalia as in Fig. 292) *lopesi* Malaise
- Thorax black with only pronotum and tegula orange; legs with tibiae and tarsi black, coxae and trochanters whitish, femora orange to dark brown; wings lightly uniformly black infuscated, veins and stigma black (antenna 1 1/2X head width) *coxalis* (Konow)

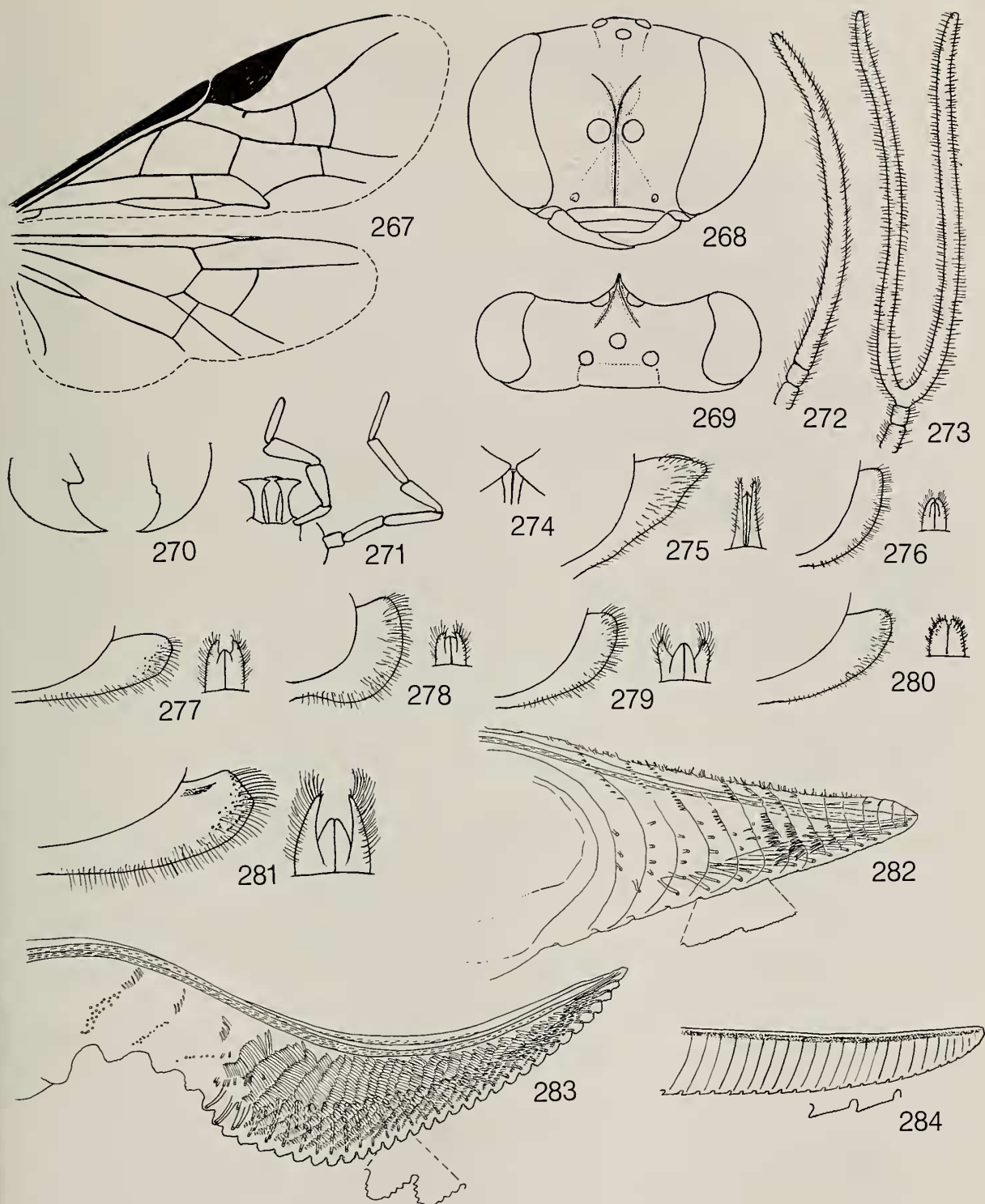
SPECIES

acella Smith, new species — Brazil (D.F.)*Acrogynmia acella* Smith.

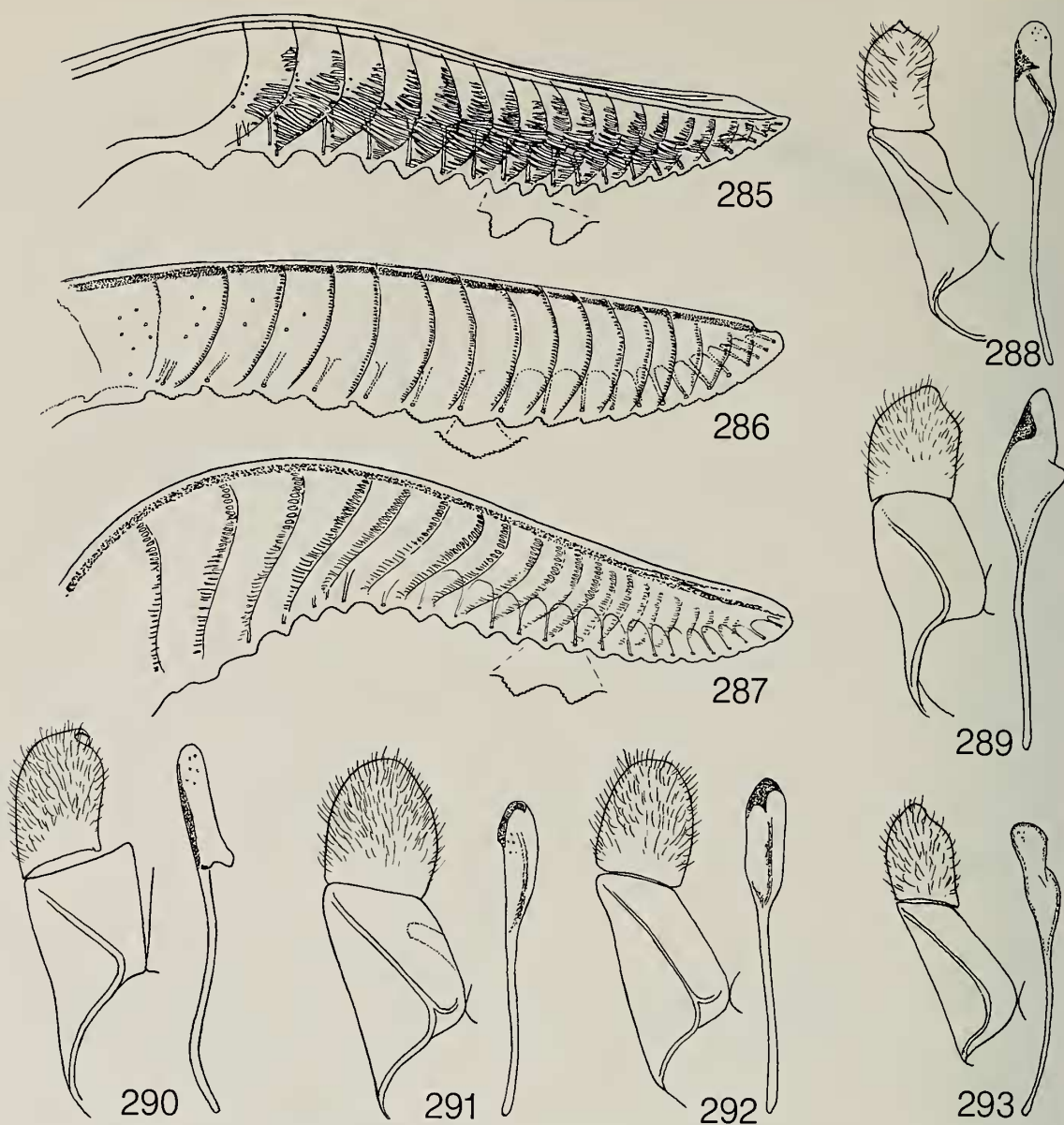
Female.— Length, 5.0-5.5 mm. Black with pronotum, parapteron, and tegula orange; apex of forefemur and foretibia whitish. Wings moderately, uniformly black infuscated. Antennal length to head width as 5.2:3.8. Clypeus subtruncate; interantennal carina bisects supraclypeal area to clypeus, Y-shaped above; 3rd segment of labial palpus enlarged; segments

of maxillary palpus uniformly slender; lower interocular distance to eye length as 2.0:2.3; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.6:0.5. Forewing with 3 cubital cells, last closed cell short, rectangular, as long on radius as on cubitus. Hindwing without anal cell. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.5:1.5. Sheath as in Fig. 279, with slender, posteriorly projecting scopae. Lancet as in Fig. 287.

Male.— Length, 4.5-5.0 mm. Coloration as for female but may have trochanters, apices of coxae,



Figs. 267-284. *Acrogymnia*. 267, Forewing and hindwing of *A. scutimacula*. 268, Front view of head of *A. scutimacula*. 269, Dorsal view of head of *A. scutimacula*. 270, Mandibles of *A. palama*. 271, Palpi of *A. palama*. 272, Female antenna of *A. palama*. 273, Male antenna of *A. palama*. 274, Cervical sclerites of *A. palama*. Female sheaths of 275, *A. imbogea*; 276, *A. pusilla*; 277, *A. palama*; 278, *A. scutimacula*; 279, *A. acella*; 280, *A. rufina*; 281, *A. diamantensis*. Female lancets of 282, *A. rufina*; 283, *A. scutimacula*; 284, *A. diamantensis*.



Figs. 285-293. *Acrogymnia*. Lancets of 285, *A. imbogea*; 286, *A. palama*; 287, *A. acella*. Male genitalia of 288, *A. imbogea*; 289, *A. scutimacula*; 290, *A. palama*; 291, *A. rufina*; 292, *A. lopesi*; 293, *A. acella*.

extreme apices of femora, and extreme bases of tibiae whitish. Antennal length to head width as 5.0:3.5. Lower interocular distance to eye length as 1.9:2.0. Genitalia as in Fig. 293.

Holotype.—E, "Res. Ecol. IBGE, Km 0 BR 251 - DF, 07 a 14-X-82, 3A-117-5m" (Brasilia, IBGE).

Paratypes.—BRAZIL: Same locality as for holotype, 26-I-2-II-84 (1 E), 9-16-XI-1979 (1 E), 7-14-XI-1980 (1 M), 21-28-XII-1979 (1 M), 13-14-XI-1978 (1 M), 10-17-X-1980 (1 M), 14-21-X-1982 (1 M) (Brasilia, IBGE; Washington).

Remarks.—This is an unusual species of *Acrogymnia* in that the anal cell of the hindwing is absent, thus it might be confused with *Tanymeles*. I place it in *Acrogymnia*, however, because of the high, Y-shaped interantennal carina which bisects the supraclypeal area; the short, rectangular third cubital cell; and the resemblance of the lancet to other *Acrogymnia* species. The coloration is almost identical to that of *imbogea*, from the same locality, but in *acella* the parapteron is orange, the pronotum is black, the anal cell is absent, the lancets differ (Figs. 285, 287), especially the shorter annular spines, and the male genitalia differ (Figs. 288, 293).

coxalis (Konow) — Brazil (Pará)

**Sericoceros coxalis* Konow 1906b: 249. M. "Brasilia (Obidos, B. Tapajos)" (Eberswalde, M).—Oehlke and Wudowenz 1984: 375 ("M lectotypus . . . (des. D.R.Smith 1978), Obidos, 4.8.1902, leg. Dücke").

Acrogymnia coxalis: Smith 1981: 285.

I studied 2 M specimens from Eberswalde, both with type labels. One is labeled "Obidos, 4.8.1902, Dücke," the other "R. Tapajos, Itaituba, 19.8.1902, Dücke." The specimen from Obidos is the lectotype as stated by Oehlke and Wudowenz (1984). I did not publish on this after labeling and returning the specimen in 1978. The other male from Itaituba is a paralectotype.

diamantinensis Malaise — Brazil (Minas Gerais)

**Acrogymnia diamantinensis* Malaise 1955: 104. E. "Brazil, Minas (Campos de Diamantina)" (Stockholm, E).

I have seen only the holotype. The sketch of the lancet (Fig. 284) is from the exerted lancet of the holotype.

imbogea Smith — Brazil (D.F.)

**Acrogymnia imbogea* Smith 1981: 284-285, fig. 23-25. E, M. "Res. Ecol. IBGE, Km 0 Br 251 - DF" (Brasilia, IBGE, E).

I have seen specimens only from the type locality.

lopesi Malaise — Brazil (Rio de Janeiro)

**Acrogymnia lopesi* Malaise 1949: 10. M. "Brazil (Rio de Janeiro, Grajahu)" (Stockholm, M).—Malaise 1955: 105.

I have seen several specimens from Reprêsa Rio Grande, Guanabara, Brazil.

palama Smith, new species — Costa Rica; Panama.

Acrogymnia palama Smith.

Female.—Length, 6.3-7.0 mm. Head and antenna black. Thorax orange with cervical sclerites, mesosternum, meso- and metapleurae (except sometimes upper 1/5 of mesepisternum and upper 1/2 of mesepimeron), most of mesoscutellum, and metanotum except for spot behind each cenchrus black. Legs black, trochanters whitish, fore- and midcoxae dark reddish, foretibia brownish. Abdomen black. Wings lightly, uniformly black infuscated; veins and stigma black. Antennal length 1 4/5X head width, as 7.0:3.8. Interantennal carina high, sharp, Y-shaped above antennae, bisecting supraclypeal area below; eyes large and converging below, lower interocular distance slightly less than eye length, as 0.8:1.0; malar space linear; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.8:1.0:0.5. Length of hindbasitarsus longer than length of following tarsal segments combined. Sheath as in Fig. 277. Lancet as in Fig. 286.

Male.—Length, 5.3-6.0 mm. Color and structure as for female. Antennal length about 1 2/3X head width. Genitalia as in Fig. 290.

Holotype.—E, "Costa Rica, Guanacaste Province, Santa Rosa National Park, D. H. Janzen," "11-V-1-VI-1985, Malaise trap BH-11-0" (Washington).

Paratypes.—COSTA RICA: Same data as for holotype, different trap numbers (24 E, M); same locality as for holotype, all from Malaise traps, trap number omitted, with following dates: 1-22-IV-85 (15 E, M), 29-VIII-14-IX-1985 (9 E, M), 14-IX-5-X-1985 (1 E), 5-26-X-1985 (2 E), 3-24-VIII-1985 (10 E, M), 13-VII-3-VIII-1985 (5 E, M), 16-XI-6-XII-1985 (1 E), 24-V-14-VI-1985 (5 E, M), 26-X-16-XI-1985 (4 E, M), 22-VI-13-VII-1985 (3 E), 2-26-X-1985 (1 E), 6-VI-1976 (1 M), 8-VII-1978 (1 M), 3-VII-1978 (1 M), 7-VII-1978 (1 M), 1-VI-78 (1 M), 14-VII-1977 (1 M), 5-VII-1977 (1 M),

4-IX-1977 (1 M), 7-VII-1977 (2 M), 15-VIII-1977 (1 M), 16-VIII-1977 (1 M), 15-VII-1977 (1 M), 3-VIII-1977 (1 M), 20-VII-1977 (1 M), 1-VII-1977 (1 M), 3-VII-1977 (1 M), 28-VII-1977 (1 M), 4-VII-1977 (1 M), 10-VIII-1977 (1 M), 10-VIII-1977 (1 M), 20-VIII-1977 (1 M), 27-VIII-1977 (1 M), 31-X-1977 (1 M), 6-VII-1977 (1 M), 6-VIII-1977 (1 M), 13-VI-1976 (1 M), 13-VII-1977 (1 M), 12-VII-1977 (1 M), 9-VIII-1977 (1 M), 18-VII-1977 (1 M), 10-VI-1977 (1 M), 12-VI-1977 (1 M), 1-X-1977 (1 M), 16-VI-1977 (1 m), 17-VI-1977 (1 M), 5-VII-1977 (1 F), 13-VIII-1977 (1 M). PANAMA: Taboga Isl., Jun. 9, 11, August Busck (1 F); 4 km N Balboa, Pan Am Hwy, Canal Zone, VI-19-1974, M. L. Siri (1 M); Arraijan A-O, May 18, 1953, Blanton traps, V. Alvarez (1 M); Panama Prov., 5± km SW Balboa, on "Vine" Road, past Palo Seco, 8-23-1984, H.L. Dozier (1 F) (Davis, London, Panama, Townes Coll., Washington).

Remarks.— This species is characterized in the key. The lancet lacks annular spines. It appears to be a relatively common species in Costa Rica.

pauxilla (Konow) — Brazil (São Paulo)

**Sericoceros pauxillus* Konow 1906b: 250. M. "Brasilia (Santos)" (Eberswalde, M).— Oehlke and Wudowenz 1984: 403 (holotype).

Acrogymnia pauxilla: Smith 1981: 285.

This is very similar in color to *pusilla* and may be the male of that species. The pronotum and tegulae are more blackish rather than orange to brown as in *pusilla*. I have seen only the holotype.

pusilla (Malaise) — Brazil (Santa Catarina)

**Hemigymnia pusilla* Malaise 1937a: 54-55. F. "Rio Grande do Sul, Nova Teutonia, Brazil" (Stockholm, F).

Acrogymnia pusilla: Malaise 1941: 140.— Malaise 1955: 105.

See discussion under *pauxilla*. The holotype is labeled as above, but Nova Teutonia is in Santa Catarina. I have seen additional specimens from Nova Teutonia.

rufina Malaise — Brazil (Minas Gerais, Rio de Janeiro, São Paulo)

**Acrogymnia rufina* Malaise 1949: 9-10. F. "Brazil (Rio de Janeiro, Grajahu and Palmeiras)" (Stockholm, F).— Malaise 1955: 105 (E, M).

The male sometimes has several black marks on the mesonotum, otherwise the thorax in most specimens is entirely red. I have seen a number of specimens from each of the Brazilian states listed above.

scutimacula Malaise — Brazil (Santa Catarina)

**Acrogymnia scutimacula* Malaise 1942: 106. E, M. "Santa Catharina, Nova Teutonia" (Stockholm, F).— Malaise 1955: 105.

The holotype F and allotype M are labeled "Rio Gr. do Sul, Nova Teutonia, Plaumann." I have seen many additional specimens from the type locality.

transtillata (Konow) — Peru

**Gymnia transtillata* Konow 1906b: 191-192. M. "Peru (Callanga Cuczo)" (Eberswalde, M).— Oehlke and Wudowenz 1984: 417 (holotype).

Acrogymnia transtillata: Smith 1981: 285.

I have seen only the holotype. It is black with the tegula, mesonotal lateral lobes, mesoscutellum, and apex of mesoprescutum red; legs black with forefemur and tibia brown; wings lightly, uniformly blackish infuscated.

Genus **ACROGYMNIDEA** Malaise

Acrogymnidea Malaise 1955: 106-107. Type species: *Acrogymnidea rioensis* Malaise. Orig. desig.

Antenna (Fig. 297) with 1st and 2nd segments each longer than broad, 3rd segment of female antenna slender or somewhat enlarged at center and flattened. Eyes large, converging below, lower interocular distance less than eye length, as about 3.0:3.5; high sharp interantennal carina, Y-shaped above antennae and bisecting supraclypeal area to clypeus below (as in *Acrogymnia*, Fig. 268); head from above sharply narrowing behind eyes; left mandible simple, right mandible with basal tooth (Fig. 295); palpi as long as eye length, 3rd labial palpal segment enlarged, maxillary palpal segments uniformly slender (Fig. 296); malar space linear. Forewing with radial cell open at apex; costa as broad or broader than intercostal area; small basal anal cell present; 3 cubital cells with last closed cell nearly quadrate, about as long on radius as on cubitus; distance between Rs+M and M on Sc+R equal to more than half length of vein M. Hindwing with anal cell, cell about equal in length or a little shorter than its

petiole (wings similar to those of *Acrogymnia*, Fig. 267). Mesoscutellum rounded on margins, not carinate. Tarsal claw with single outer tooth and with large, acute basal lobe (Fig. 294).

Most characters are similar to *Acrogymnia*, including the extremely high interantennal carina. The main difference is the acute basal lobe of the tarsal claw

in *Acrogymnidea* which occurs in only one other genus, *Atomacera*. Two species are added to this previously monotypic genus.

Hosts and biologies are not known. The genus occurs from Surinam and Ecuador to southeastern Brazil.

KEY TO SPECIES

1. Mostly black with pronotum, tegula, parapteron, basal sternites, spots at center of 3rd and 4th terga, and legs except for part or all of hindtibia and hindtarsus orange (3rd antennal segment slender; female sheath as in Fig. 299; lancet as in Fig. 302; male genitalia as in Fig. 304) *rioensis* Malaise
- Mostly red or yellow with black only on mesonotum, mesosternum, and at apex of abdomen 2
2. Mesosternum black; tibiae and tarsi mostly yellow, only apex of fore- and midtibiae and 3rd and 4th or 2nd to 4th tarsal segments of each leg black; forewing faintly yellowish, blackish at apex; 3rd antennal segment slender; lancet as in Fig. 303; sheath as in Fig. 300 *udata*, new species
- Underthorax entirely red; tibiae and tarsi black; wings uniformly blackish infuscated; 3rd antennal segment broad, similar to Fig. 297; lancet as in Fig. 301; sheath as in Fig. 298 *surinamensis*, new species

SPECIES

rioensis Malaise — Brazil (Minas Gerais, Rio de Janeiro, São Paulo)

**Acrogymnidea rioensis* Malaise 1955: 107. F. M. "Brazil, Rio de Janeiro (Mend's 92 kms from Rio, and Nova Friburgo)" (Stockholm, F.).

Other than the types, I have seen specimens from the following localities in Brazil: Serra do Caraca, S. Barbara, Minas Gerais; Barueri, São Paulo; São Paulo.

surinamensis Smith, new species - Surinam

Acrogymnidea surinamensis Smith.

Female.—Length, 10.0 mm. Antenna black. Head black with interantennal carina, supraclypeal area, clypeus, labrum, mandible, and palpi orange. Thorax red with large black spots on mesoprescutum and mesonotal lateral lobes. Legs orange red with tibiae and tarsi black. Abdomen red; sheath black. Wings uniformly, lightly, black infuscated; veins and stigma black. Antennal length 2X head width; 1st segment 2X length of 2nd segment; 3rd segment laterally flattened, broader at center than at base or apex (similar to Fig. 297). Postocellar area 2X broader than long. Sheath with short, posteriorly projecting scopae, in lateral view rounded at apex (Fig. 298). Lancet as in Fig. 301.

Male.—Unknown.

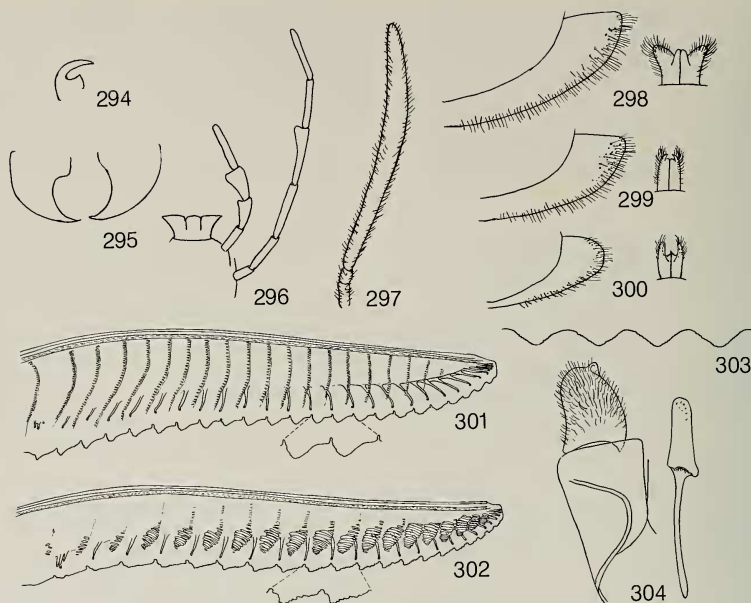
Holotype.—F., "Suriname, Paramaribo, Charlesburg, 29 April 1963, P. H. v. Doesburg, Jr." (Leiden).

Remarks.—The orange abdomen, orange thorax except for the black marks on the mesonotum, and orange legs with the tibiae and tarsi black will separate *surinamensis* from the other two species of *Acrogymnidea*.

udata Smith, new species - Ecuador

Acrogymnidea udata Smith.

Female.—Length 9.5 mm. Antenna with outer surfaces of 1st and 2nd segments yellow, inner surfaces black; 3rd segment black. Head black with interantennal carina, supraclypeal area, clypeus, labrum, mandibles, and palpi yellow. Thorax yellow with mesosternum and mesonotum black, spots on lateral edges of mesoprescutum and posterior margin of mesoscutellum yellow. Legs yellowish with following blackish: extreme apices of fore- and midtibiae, 3rd and 4th fore- and midtarsal segments, streak on outer surface of apical 1/3 of hindtibia, and 2nd to 4th hindtarsal segments. Abdomen yellow with apical segment and sheath black, next to last segment mostly black except for lateral margin. Wings faintly yellowish with apex beyond stigma in forewing blackish; stigma brownish with ventral margin more yellowish; veins brownish to more blackish at apex of forewing. Antennal length slightly less than 2X head width; 1st segment 2X longer than 2nd segment; 3rd segment not laterally flattened



Figs. 294-304. *Acrogymnidea*. 294, Tarsal claw of *A. rioensis*. 295, Mandibles of *A. udata*. 296, Palpi of *A. udata*. 297, Female antenna of *A. rioensis*. Female sheaths of 298, *A. surinamensis*; 299, *A. rioensis*; 300, *A. udata*. Female lancets of 301, *A. surinamensis*; 302, *A. rioensis*; 303, *A. udata* (central serrulae). 304, Male genitalia of *A. rioensis*.

Genus *ADURGOA* Malaise

and of uniform thickness throughout. Sheath with short, blunt, posteriorly projecting scopae; in lateral view rounded at apex (Fig. 300). Serrulae of lancet as in Fig. 303, otherwise similar to that of *surinamensis*, Fig. 301.

Male.—Unknown.

Holotype.—E, "Sto. Domingo, 680 m., Pich. Prov. Ecuador, V.15-30.1975, S. and J. Peck." (Townes Coll.)

Remarks.—The black mesosternum, black mesonotum, mostly yellowish tibiae and tarsi, and lancet will distinguish *udata* from the other two species. Compare the lancets of the three species of *Acrogymnidea* in Figs. 301-303 for separation.

Adurgoa Malaise 1937a: 52. Type species: *Hylotoma bonariensis* Holmgren. Orig. desig.

Antenna (Fig. 306) with 1st segment as long as broad with deep circular furrow near base, 2nd segment broader than long, 3rd segment of female antenna slender and may be slightly compressed, tapering toward apex; antennal length shorter than or not more than 1 1/3X head width. Malar space narrow, less than diameter of front ocellus; clypeus truncate; supraclypeal area convex and smooth, interantennal carina rounded without median furrow; eyes small, lower interocular distance longer than eye length (Fig. 307); head from above broadened behind eyes; palpi short, all segments uniformly slender (Fig. 309), maxillary palpus about 1/2 eye length; each mandible with basal tooth (Fig. 308). Forewing (Fig. 305) with radial cell closed, with

broad than intercostal area; small basal anal cell present; 4 cubital cells with last closed cell about same length on radius as on cubitus; distance between Rs+M and M on Sc+R more than half length of vein M. Hindwing (Fig. 305) with anal cell present, usually shorter than its petiole. Tarsal claws simple.

This genus is very similar to *Durgoa*, but *Adurgoa* lacks a furrow on the interantennal carina, has a convex, smooth supraclypeal area, has the second antennal

segment broader than long, has a quadrate third cubital cell, has the palpal segments of uniform width, and the lancets are shorter with 16 or fewer segments. The lancets of *Durgoa* are long with more than 20 segments (Figs. 385-387).

"*Cassia*" is on the labels of two specimens of *gonagra* from Argentina. Otherwise hosts and biologies are not known. The genus is found in northern Argentina and adjacent countries.

KEY TO SPECIES

1. Mostly black with following whitish: supraclypeal area, center of clypeus, labrum, pronotum (except center), tegula, sometimes part or all of mesoscutellum, metascutellum, sometimes apical margins of abdominal segments, apices of femora, and basal 1/3 of tibiae (sheath as in Fig. 310; lancet as in Fig. 313; male genitalia as in Fig. 316). *gonagra* (Klug)
- Mostly orange, especially mesopleuron, mesoscutellum, and most of legs; abdomen black or orange with black apex. 2
2. Abdomen mostly black. *ovalis* (Klug)
- Abdomen orange with apical segments black. 3
3. Coxae orange; at least apical 2/3 of hindtibiae black; costa black; clypeus and supraclypeal area black to brownish; lancet with short annular setae, not spines, Fig. 314; sheath as in Fig. 312. *mamillata* (Konow)
- Coxae, except apices, black; only apical 1/3 of hindtibiae black; costa mostly orange; clypeus and supraclypeal area whitish; lancet with long annular spines, Fig. 315; sheath as in Fig. 311. *willinki*, new species

SPECIES

***gonagra* (Klug), new combination** — Argentina
(Buenos Aires, Entre Rios); Brazil
(“Südbrasilien”)

**Hylotoma gonagra* Klug 1834: 251. E. “Südbrasilien” (Berlin, E).— Kriechbaumer 1884: 290.

Ptilia gonagra: Norton 1867: 62.

Hemidianeura gonagra: Kirby 1882: 49, 389 (Argentina).— Dalla Torre 1894: 321.

Ptenus gonagra: Konow 1905a: 25.— Konow 1906b: 182.

Hylotoma bonariensis* Holmgren 1868: 391. E. “Buenos Ayres” (Stockholm, E). **New synonymy.

Ptenus bonariensis: Kirby 1882: 53.— Konow 1905a: 25.

Ptenos bonariensis: Dalla Torre 1894: 323.— Jörgensen 1913: 251.— Forsius 1925a: 6.

Adurgoa bonariensis: Malaise 1937a: 52.

Host: Two specimens from Buenos Aires, Argentina, collected by Jörgensen in 1914 bear the data “esc. I. Cassia.”

I have seen additional specimens from Luján, Buenos Aires Province, and Entre Rios Province, Argentina.

***mamillata* (Konow), new combination** — Argentina
(Catamarca, Córdoba, Tucumán); Bolivia

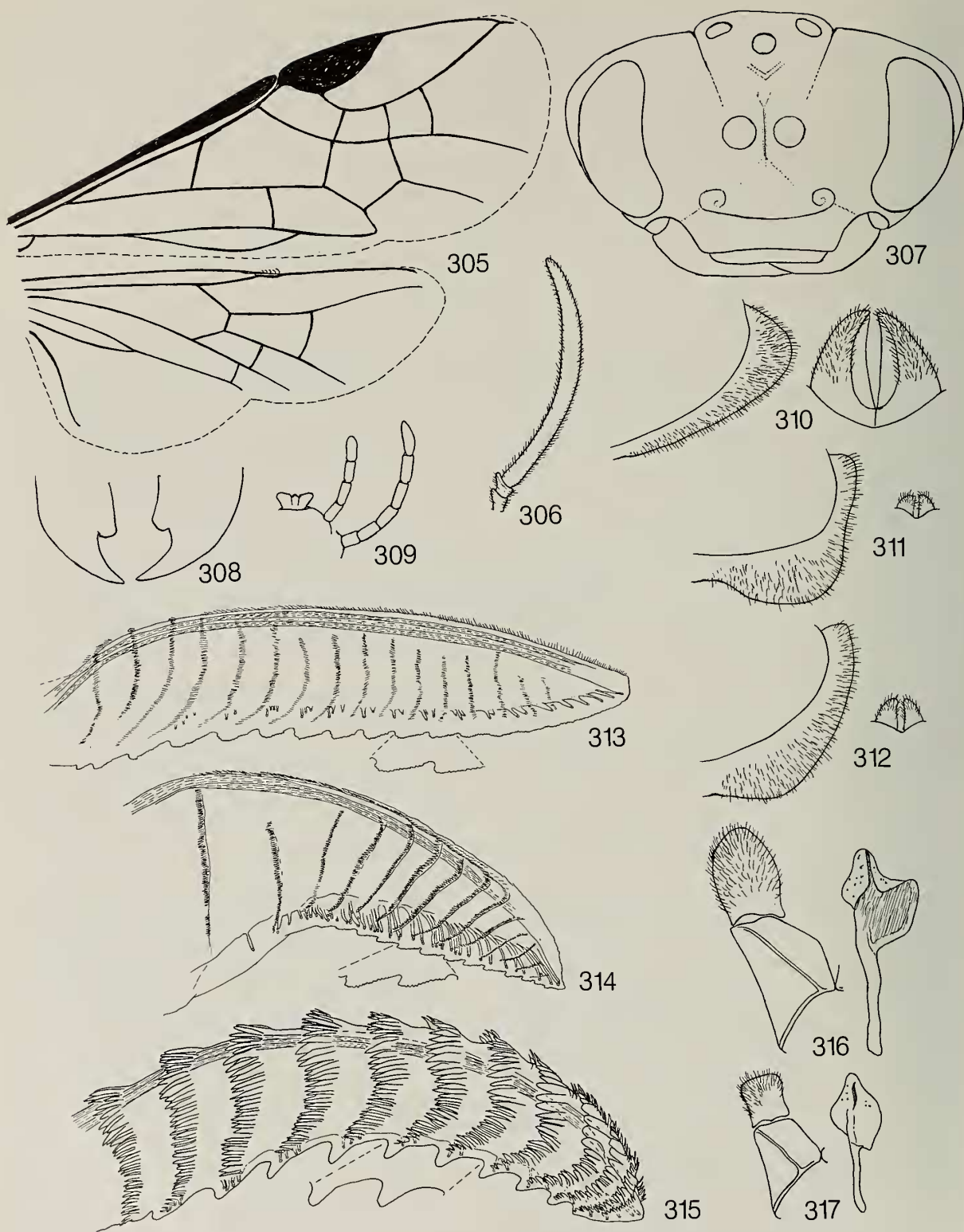
**Tanyphatna mamillata* Konow 1906b: 253. E. “Bolivia (Santa Cruz)” (Eberswalde, E).— Oehlke and Wudowenz 1984: 394 (“2 E Lecto- und Paralectotypus (des. D.R.Smith 1978)”).

Two females, both the same species and from the same locality, “Sta. Cruz, Süd-Bolivia, H. Rolle, Berlin, SWII,” are at Eberswalde; the specimen with Konow’s determination label is the lectotype, the other a paralectotype, as I labeled them in 1978. Oehlke and Wudowenz attributed this designation to me, but I had not published on it. I have seen specimens from the following Argentina localities: Catamarca, Dpto. Aconquija, El Alamito, 1500 m; Tucumán, Trancas, San Pedro de Colalao; Córdoba.

***ovalis* (Klug), new combination** — Argentina;
Paraguay; Uruguay

**Hylotoma ovalis* Klug 1834: 241. E. “Montevideo” (Berlin, E).— Kriechbaumer 1884: 290.

Ptilia ovalis: Norton 1867: 62.



Figs. 305-317. *Adurgoa*. 305, Forewing and hindwing of *A. gonagra*. 306, Female antenna of *A. gonagra*. 307, Front view of head of *A. gonagra*. 308, Mandibles of *A. gonagra*. 309, Palpi of *A. gonagra*. Female sheaths of 310, *A. gonagra*; 311, *A. willinki*; 312, *A. mammilata*. Female lancets of 313, *A. gonagra*; 314, *A. mammilata*; 315, *A. willinki*. Male genitalia of 316, *A. gonagra*; 317, *A. sp.*

Hemidianeura ovalis: Kirby 1882: 49.— Dalla Torre 1894: 322.— Brethès 1927: 335 (Paraguay: Villarrica).
Nematoneura ovalis: Konow 1905a: 24.— Jörgensen 1913: 251 (Argentina).

I have seen only the holotype. The Paraguay and Argentina records are from the literature. The sheath is similar to the short, broad sheath of *mamillata* and *willinki*; the color is similar to those two species also, but the abdomen is black with faint lateral yellow stripes, the coxae are mostly black, the basal parts of the mid- and hindtibiae are blackish, and the apical two-thirds of the hindtibia is black. More specimens are needed to evaluate the status of this species.

willinki Smith, new species — Argentina (Formosa, Santa Fé)

Adurgoa willinki Smith.

Female.— Length, 5.5-6.0 mm. Head black with supraclypeal area, clypeus, and palpi whitish to yellow orange. Thorax orange with mesosternum (except line at center), lower 1/5 or less of mesepisternum, lower half of mesepimeron, extreme lower edge of metapleuron, mesoprescutum, and mesonotal lateral lobes (except lateral downturned portions) black. Abdomen orange with apical 3-4 segments, 1 or 2 terga anterior to these segments, and sheath black. Legs orange with coxae (except apical margins and sometimes lateral stripe on hindcoxa), apical 1/3 of hindtibia, and hindtarsus black. Wings lightly uniformly black infuscated; veins and stigma black, costa orange becoming blackish at apex. Antenna with 1st segment about as long as broad, 2nd segment broader than long, 3rd segment slender, not flattened, slightly tapering toward apex; antennal length equal to or slightly shorter than head width. Malar space linear; supraclypeal area convex, shining; rounded interantennal carina without a furrow; distances between eye and hindocellus, hindocelli, and hindocellus and posterior margin of head as 0.8:1.0:1.0. Length of hindbasitarsus shorter than length of remaining tarsal segments combined, subequal to following 3 segments. Sheath as in Fig. 311. Lancet as in Fig. 315.

Male.— Unknown.

Holotype.—E, "RA, Santa Fe, Villa Ana, 18.II.1946, Hayward, Willink" (Tucumán).

Paratype.— ARGENTINA: Formosa, Riacho Negro, 24.XI.1950, Monros-Willink (1 E) (Tucumán).

Remarks.— The coloration is most similar to *mamillata*, but *willinki* is separated by those color features in the key as well as by the lancet which has long annular spines.

Genus APROSTHEMA Konow

Aprosthem Konow 1899c: 149. Type species: *Hylotoma brevicornis* Fallén. Desig. by Rohwer 1911a.

Lyrola Ross 1937: 55. Type species: *Schizocera brunniventris* Cresson. Orig. desig.

Length of female antenna shorter than head width, of male to 1.5X longer than head width, 1st and 2nd segments each broader than long, 3rd segment of female antenna short and broad (Figs. 318, 319). Eyes small, not converging below, lower interocular distance longer than eye length; head from above broader than long, sharply narrowing behind eyes, and depressed or concave anteriorly between eyes (Fig. 318); without interantennal carina; malar space broader than diameter of front ocellus; clypeus truncate; labrum rounded; left mandible simple, right mandible with basal tooth; palpi shorter than eye length, segments uniformly narrow. Forewing with radial cell open; costa about as broad as intercostal area; 4 cubital cells, last closed cell rectangular, as long on radius as on cubitus; distance between M and Rs+M on Sc+R about half length of vein M; basal anal cell absent. Hindwing with anal cell present, slightly longer than its petiole. Tarsal claws simple.

This genus is recognized by the broad head, depressed between the eyes in dorsal view, broad malar space, short and uniformly slender palpi, open radial cell of the forewing, absence of a basal anal cell in the forewing, and the anal cell of the hindwing longer than its petiole.

Aprosthem is a holarctic genus with about 15 species. Smith (1971b) treated two species in western North America, one of which reaches northern Mexico.

SPECIES

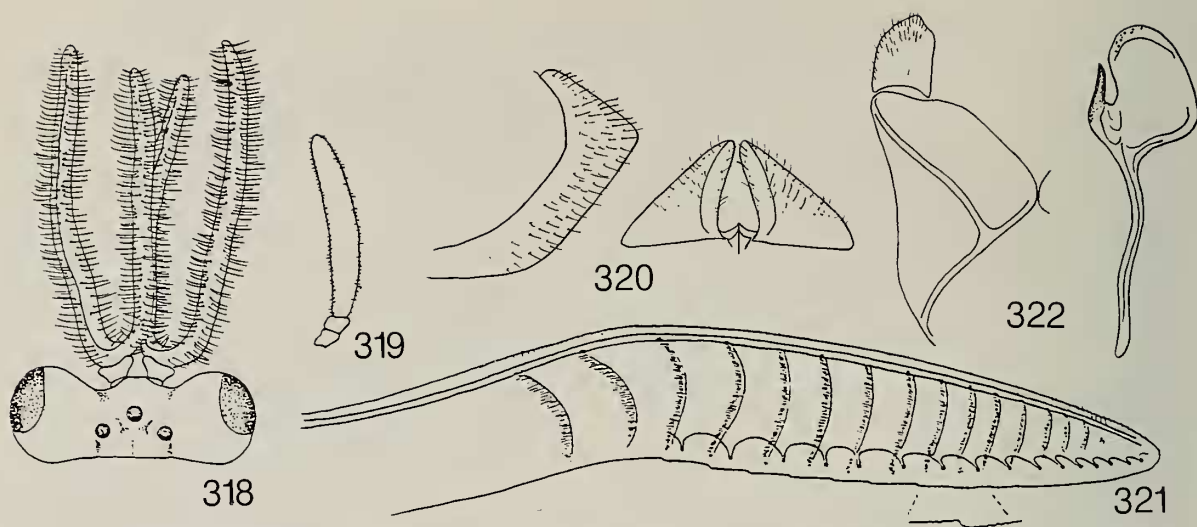
brunniventre (Cresson) — Mexico (Baja California Norte); U.S.A. (California, Nevada, Oregon, Washington)

**Schizocera brunniventris* Cresson 1880: 2. E, M. "Nevada" (Philadelphia, E).— Dalla Torre 1894: 312.— Konow 1905a: 29.— Cresson 1916: 3 (holotype).

Lyrola brunniventris: Ross 1937: 55 (syn.: *tristis* Cresson, *fumipennis* Dyar; hosts b, c).

Aprosthem *brunniventris*: Ross 1951: 15 (host c).— Smith 1971b: 547-549, fig. 8, 9, 21, 22, 53, 85, 86 (description; genitalia fig.; hosts a, b).— Smith 1972: 170-171, fig. 11-15 (larva; host b).— Smith 1979: 23 (host b).

**Schizocera tristis* Cresson 1880: 52. E, M. "Washington Territory" (Philadelphia, E).— Dalla Torre 1894: 314.— Konow 1905a: 29.— Cresson 1916: 9 (holotype).



Figs. 318-322. *Aprosthema brunniventre*. 318, Dorsal view of head of male. 319, Female antenna. 320, Female sheath. 321, Female lancet. 322, Male genitalia.

**Schizocera tristis* var. *fumipennis* Dyar 1893: 195. F, M, larva. Yosemite, California. (Washington, E) (host a; biological notes).— Smith 1971b: 548 (lectotype).— Smith 1987: 370, 387 (lectotype; discussion of Dyar's work).

Hosts: a) *Hosackia grandiflora*; b) *Hosackia*; c) *Lotus* (Leguminosae).

The female sheath, female lancet, and male genitalia are as in Figs. 320-322. I have seen three specimens from Baja California Norte, Mexico: 20 mi. N. Punta Prieta, III-29-1973; 1 mi NE El Socorro, III-25-1973, sand dunes. One bears the data "on *Malacothrix californica*: and another "*Oenothera* (*Camissonia*) *bistorta*." These are probably adult collection data. All specimens are in the Berkeley collection.

Genus **BRACHYPHATNUS** Konow

Brachyphatnus Konow 1906b: 250-251. Type species: *Brachyphatnus debilicornis* Konow. Desig. by Rohwer 1911a.

Antennal length in female usually less than head width, in male slightly longer than head width; 1st segment longer than broad, 2nd segment broader than long; 3rd segment of female antenna round in cross section (Fig. 325). Clypeus truncate to slightly emarginate; interantennal area rounded, without sharp carina; malar space equal to or less than diameter of front ocellus; eyes small, only slightly converging below,

with lower interocular distance greater than eye length (Fig. 324); head from above narrowing behind eyes; palpi shorter than or subequal to eye length, segments of uniform width (Fig. 327); left mandible simple, right mandible with basal tooth (Fig. 326). Forewing (Fig. 323) with radial cell open at apex; costa swollen, broader than intercostal area; with 3 or 4 cubital cells, the last closed cubital cell square, as long on radius as on cubitus; basal anal cell present; distance between M and Rs+M on Sc+R half or more length of vein M. Hindwing (Fig. 323) with anal cell, sometimes basal portion faint and appearing open, length of cell subequal to length of its petiole. Hindtibia with collar at apex, hindtibial spurs arising from base of collar and not extending much beyond apex of collar (Fig. 328); length of hindbasitarsus shorter than length of remaining tarsal segments combined; tarsal claws simple.

Brachyphatnus resembles *Sphacophilus* and *Schizocerella*, but it is separated from them and other genera by the collar at the apex of the hindtibia and presence of an anal cell in the hindwing. Malaise (1955) gave a key to species, but "*B. annulipes*" in his key belongs to the genus *Subsymmia*, and "*B. jenseni*" is a misidentification and is the same as the new species described here. *Brachyphatnus jenseni* Konow belongs in the genus *Schizocerella*.

This genus is known only from Uruguay, Argentina, and northern Chile. Hosts are not known except for one label associating a specimen of *tegularis* with Malvaceae and Parker et al. (1953) record of *tegularis* from *Malva* sp.

KEY TO SPECIES

1. Female. 2
- Male 4
2. Mesonotum black with margins of lobes orange; abdomen orange dorsally (sheath as in Fig. 329; lancet as in Fig. 332). *vescus*, new species
- Mesonotum red; abdomen black. 3
3. Mesopleuron black; tegula red; wings hyaline with costa and stigma amber to light brown; lancet as in Fig. 334; sheath as in Fig. 331 *debilicornis* Konow
- Mesopleuron usually partly or all red; tegula black; wings lightly infuscated black with costa and stigma black; lancet as in Fig. 333; sheath as in Fig. 330 *tegularis* (Konow)
4. Thorax with pronotum and usually part of mesonotum and mesopleuron orange to red; abdomen black, sometimes segments 2-6 orange to reddish (genitalia as in Fig. 337). *tegularis* (Konow)
- Thorax black with tegula black or partly white; abdomen black. 5
5. Head in profile with supraclypeal area distinctly protuberant; antennae only slightly longer than head width; genitalia as in Fig. 336 *debilicornis* Konow
- Head in profile with supraclypeal area flattened; antennae about 1 1/3X head width; genitalia as in Fig. 335 *vescus*, new species

SPECIES

***debilicornis* Konow** — Argentina (Mendoza, Salta)

**Brachyphatnus debilicornis* Konow 1906b: 251-252. F, M. "Rep. Argentina (Mendoza)" (Eberswalde, F).—Jørgensen 1913: 261.—Malaise 1955: 109.—Oehlke and Wudowenz 1984: 376 (2 M, 1 F syntypes at Eberswalde).

I examined the three syntypes from Eberswalde. All are labeled "Mendoza, Amer. mer." The female is here designated lectotype, the two males are paralectotypes. I have examined additional specimens from Mendoza and one specimen from Salta, Argentina.

***tegularis* (Konow)** — Argentina (Buenos Aires, La Rioja, Salta, Santa Fé, Santiago del Estero, Tucumán); Uruguay

**Schizoceros tegularis* Konow 1899b: 403. F, M. "Argentina resp. (Buenos Aires, Tandil, Chacabuco)" (Eberswalde, M).—Konow 1905a: 29.—Oehlke and Wudowenz 1984: 415 (1 F syntype at Eberswalde).

Brachyphatnus tegularis: Konow 1906b: 251.—Malaise 1955: 109.

Schizocera tegularis: Enderlein 1919: 120 (Mendoza [probably not *tegularis*]).

Sterictiphora sp.: Parker et al. 1953: 45 (Los Brenas, Argentina; host a; parasite: *Boethus* sp.).

**Brachyphatnus tegularis rosarioensis* Malaise 1955: 109. M. "Argentina, Prov. Santa Fé (Rosario)" (München, M). New synonymy.

Hosts: a) on *Malva* sp. (Malvaceae); b) "Malvaceae" is on labels of two specimens from Uruguay.

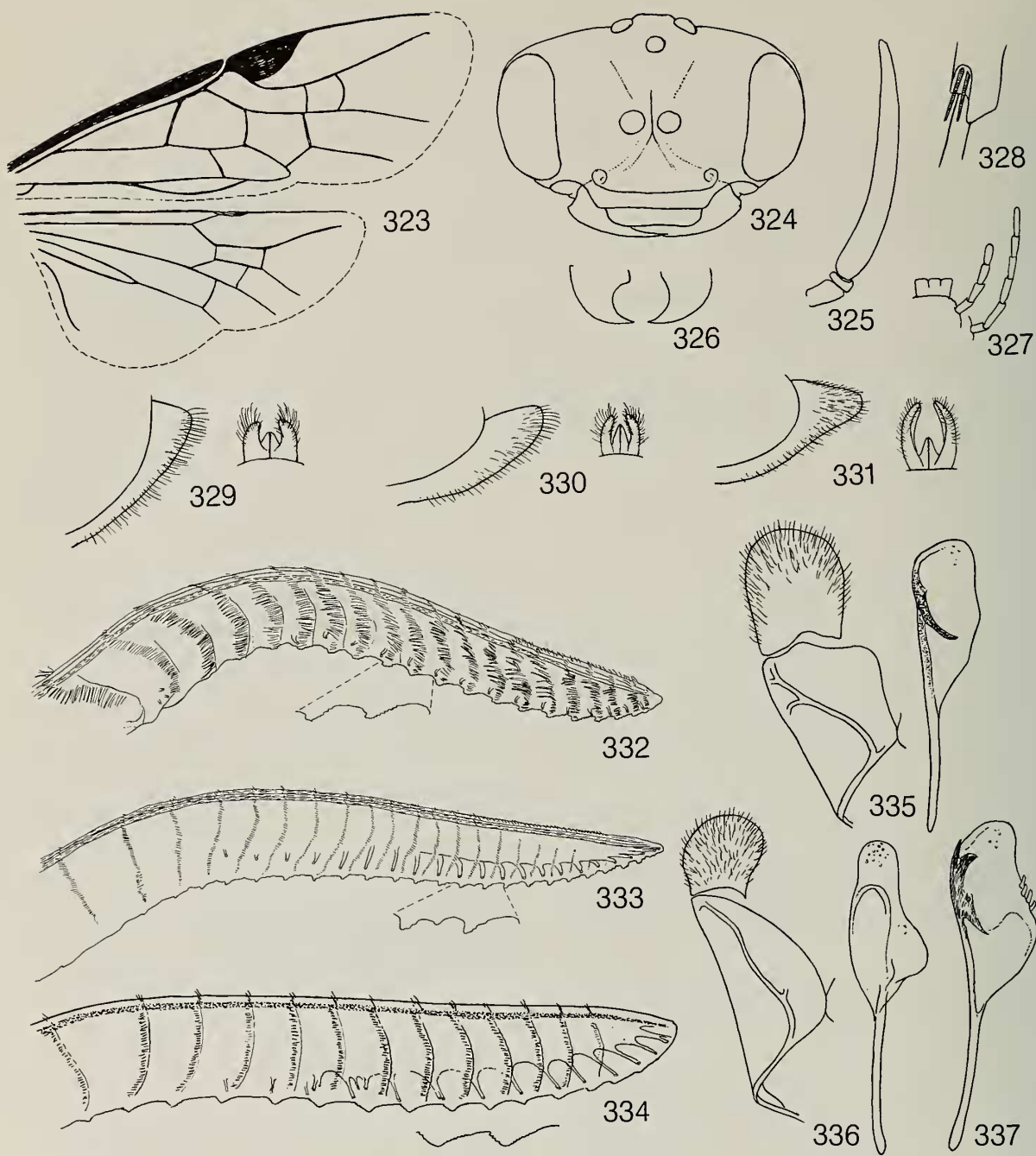
Malaise's subspecies is a male of *tegularis*. The color differs slightly from most males in that the tegula and clypeus are mostly black. I saw one male labeled "type" of *tegularis* from Eberswalde and "Rep. Argent." is on the determination label. I am designating this specimen the lectotype. The female and possibly other specimens of the type series may be unlocated at Buenos Aires. I have examined specimens from the following Argentina localities: Yuto; Tucumán, Villa Marcos Paz; Oran, Abra Grande, Salta; Santiago del Estero, Termas de Rio Hondo; Salta, Rio Mescado; La Rioja; Buenos Aires. The Uruguay specimens are from Las Brenas, Chaco.

***vescus* Smith, new species**—Chile (Atacama, Coquimbo)

Brachyphatnus jenseni: Malaise 1955: 108 (misidentification).

***Brachyphatnus vescus* Smith.**

Female.—Length, 4.8-5.2 mm. Antenna black. Head black, spot on supraclypeal area, clypeus, mandible, and mouthparts yellow orange; labrum whitish. Thorax black, pronotum, lines along sutures of mesonotum, lateral margins of mesonotum, posterior margin of mesoscutellum, and metascutellum orange. Abdomen mostly dark orange above, blackish below; dorsum suffused with blackish on lateral margins and



Figs. 323-337. *Brachyphatnus*. 323, Forewing and hindwing of *B. tegularis*. 324, Front view of head of *B. debilicornis*. 325, Female antenna of *B. debilicornis*. 326, Mandibles of *B. debilicornis*. 327, Palpi of *B. debilicornis*. 328, Apex of hindtibia of *B. debilicornis*. Female sheaths of 329, *B. vesus*; 330, *B. tegularis*; 331, *B. debilicornis*. Female lancets of 332, *B. vesus*; 333, *B. tegularis*; 334, *B. debilicornis*. Male genitalia of 335, *B. vesus*; 336, *B. debilicornis*; 337, *B. tegularis*.

at apex, venter suffused with orange at base. Sheath black with orange spot laterally at base. Legs yellow orange with most of coxae (except extreme apices), most of forefemur (except extreme apex), about basal 2/3 of midfemur, and about basal 1/3 to 1/2 of hindfemur black. Wings hyaline; veins and stigma brownish to black with costa except extreme apex white. Antennal length about 4/5 head width. Malar space less than 1/2 diameter of front ocellus; interantennal area rounded; supraclypeal area, in profile, not protuberant; clypeus truncate; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.5:2.0:1.0; lower interocular distance 1 1/2X eye length. Length of hindbasitarsus subequal in length to 3 following tarsal segments combined. Sheath (Fig. 329) with stout scopae. Lancet as in Fig. 332, with long annular hairs.

Male.—Length, 4.7–5.0 mm. Head, thorax and abdomen black, only labrum, mandible, palpi, and posterior 1/2 of tegula white to yellow orange; legs colored as in female. Antennal length about 1.75X head width. Genitalia as in Fig. 335.

Holotype.—E, "Chile, Atacama: Pajonales, X-19-1971, Rozen and Peña" (New York).

Paratypes.—CHILE: Same data as for holotype (1 E, 6 M); Atacama, 55 km S. Copiapo, X-21-1971, Rozen and Peña (2 M); Atacama, 26 mi S. Copiapo, X-19-1969, Rozen and Peña, collectors (2 M), X-18-1969 (1 M), X-22-1969 (1 M); Coquimbo: Llano de la Higuera, N. of El Tofo, X-14-1971, Rozen and Peña (6 E, 1 M); 10 k Norte Copiapo, Desierto, VIII-1965, R. Charlin, collector (1 M); N. Castilla, Vallenar, Prov. Atacama, 24 Oct. 1969, coll. L.E. Peña (2 E, 5 M). (Mus. Nac. Santiago, New York, San Francisco, Washington).

Remarks.—This species is separated from other species of *Brachyphatnus* by the mostly black thorax (without reddish markings) and more orange abdomen (not black on dorsum) and by the genitalia (compare Figs. 332–337). Some variation of color is evident. The clypeus and supraclypeal area is black in some specimens and the upper corner or margin of the mesepisternum may be yellow orange.

Malaise (1955) included this species in his key under the name "*jenseni*" (see *Schizocerella*).

Genus *DIDYMIA* Lepeletier and Serville

Didymia Lepeletier and Serville 1828: 574. Type species: *Hylotoma martini* Lepeletier. Monotypic.

Gymnia Brullé 1846: 668. "*Gymnia* Lep." listed in synonymy of *Didymia*; the only species in *Didymia* mentioned is *martini* Lepeletier; Lepeletier apparently did not describe the genus.

Rusobria Cameron 1878: 150. **New synonymy.** Type species *Rusobria carinata* Cameron. Desig. by Rohwer 1911a.

Tanyphatna Konow 1906b: 187. **New synonymy.** Type species: *Tanyphatna pellos* Konow. Desig. by Rohwer 1911a.

Hemidianeurina Forsius 1925: 6. Type species: *Hemidianeurina nobilis* Forsius. Orig. desig.

Antennal length usually not more than 1.5X head width; 1st segment longer than broad; 2nd segment only slightly longer than broad in female, usually broader than long in male; 3rd segment of female antenna usually slightly laterally flattened (Figs. 340, 341). Clypeus subtruncate; malar space linear; left mandible simple, right mandible with basal tooth (Fig. 342); maxillary palpus longer than eye length, with 4th segment dilated, 3rd and sometimes 2nd labial palpal segments dilated (Figs. 343, 344); eyes usually large, converging below, lower interocular distance shorter than or slightly greater than eye length (Fig. 339); head from above usually narrowing behind eyes; interantennal carina low and rounded or sharp and bisecting half or less of supraclypeal area below. Forewing (Fig. 338) with radial cell closed at apex and with long accessory vein, usually 3 cubital cells (4 in a few species) with last closed cubital cell much longer on radius than on cubitus; costa slightly narrower than to broader than intercostal area; distance between M and Rs+M on Sc+R equal to about half length of vein M; small basal anal cell present. Hindwing (Fig. 338) with anal cell, usually shorter than or equal to its petiole. Tarsal claws simple.

Members of *Didymia* are somewhat diverse in size and color, but the following help define the genus: eyes large and converging below; linear malar space; long maxillary palpus; segment 3 of labial palpus and segment 4 of maxillary palpus short and strongly dilated; interantennal area usually rounded or with a low carina; radial cell of forewing closed with long accessory vein; last closed cubital cell longer on radius than on cubitus; and anal cell present in hindwing. The female sheath of most species is broad with blunt postero-laterally projecting scopae.

Many of these species were once placed in *Ptilia*, and *Didymia* was considered synonymous with *Ptilia* by some authors (e.g., Konow 1905a). Malaise (1949)

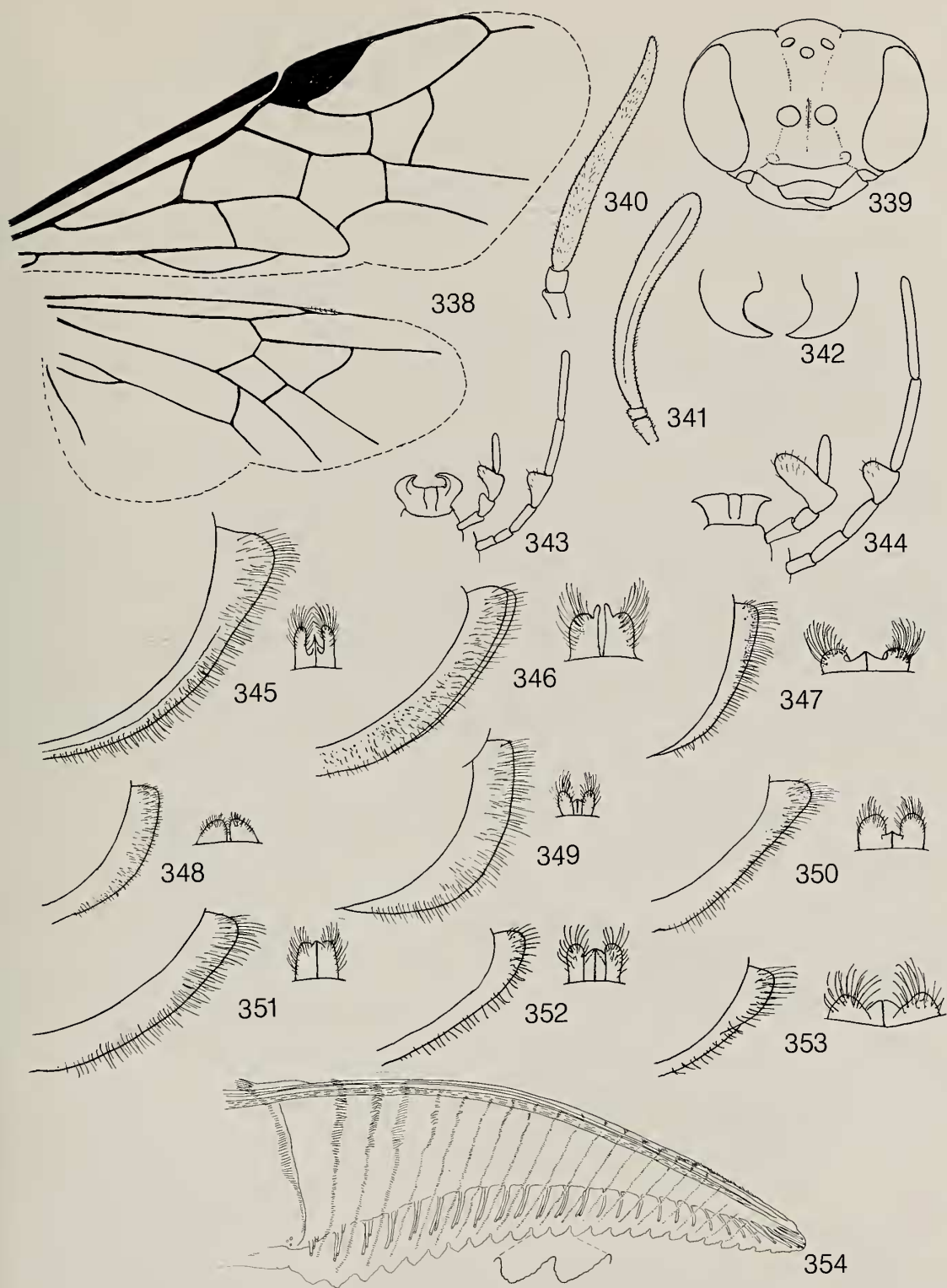
gave characters to separate the two genera, primarily the presence of an interantennal carina and the rounded blunt sawsheath of the female of *Didymia*. In *Ptilia*, the face between the antennae is more depressed, and the female sawsheath is narrow in dorsal view and acute at its apex in lateral view. Also, the female lancets of *Ptilia* are short and triangular, usually with less than 12 segments (Figs. 505-509). *Tanyphatna* was separated by the somewhat smaller eyes with the lower interocular distance slightly greater than the eye length, the somewhat more compressed female antenna, and the head in dorsal view more broadened behind the eyes. I do not consider these sufficient for generic separation inasmuch as there are degrees of gradation within the genus.

Malaise (1949) regarded *Tanyphatna catinifera* Konow as type species of *Tanyphatna*; however, Rohwer (1911a) had already designated the type. The genus name *Gymnia* first appeared in Brullé (1846). Later authors attributed the name to Spinola (1851) who characterized it and described two species. Rohwer (1911a) designated *G. apicalis* Spinola as type species of *Gymnia* Spinola. *Gymnia* Spinola is listed in the synonymy of *Tanymeles* as a preoccupied name.

Little is known of the biology and only two host plants, *Rourea* and *Connarus*, have been recorded. The genus is known from Panama and Surinam south to Peru and southern Brazil.

KEY TO SPECIES

1. Abdomen black, or black with basal 3 or 4 terga laterally and basal 3 or 4 sterna orange. 2
- Abdomen yellow or orange, apical 3 or 4 segments may be black 11
2. Thorax black 3
- Thorax with pronotum and/or part or all of mesothorax red or orange 5
3. Abdomen black or with basal 3 or 4 terga laterally and basal 3 or 4 sterna orange; forewing with broad black band below stigma, base and apex hyaline (sheath as in Fig. 347; lancet as in Fig. 361) *connarusae*, new species
- Abdomen black; forewing with black band below stigma and black at base or hyaline with apex black 4
4. Foreleg black; 3 cubital cells in forewing; forewing hyaline at base, infuscated black from base of stigma to apex *pellos* Konow
- Foretibia and/or tarsus with white; 3 or 4 cubital cells in forewing; forewing infuscated black at base, center, and apex with hyaline bands between (sheath as in Fig. 345; lancet as in Fig. 363) *carbonaria* (Cameron)
5. Thorax black with only mesonotum partly or all red or orange 6
- Other parts of thorax with some orange or red coloration 7
6. Mesonotum orange, may be blackish at apex of prescutum or on scutellum; forewing lightly, uniformly infuscated, a little paler toward apex; 4 cubital cells in forewing *crassicornis* (Cameron)
- Mesonotum with lateral lobes orange, prescutum and scutellum black; forewing infuscated basally and beyond base of stigma, hyaline at center; 3 cubital cells in forewing *soror* (Kirby)
7. Legs white with apex of hindtibia and tarsus black; clypeus and supraclypeal area white (forewing black at base, below stigma, and at apex, with 2 hyaline bands in between; thorax black with pronotum, tegula, mesonotal lateral lobes, mesoscutellum, upper 1/3 mesepisternum, and metathorax orange; sheath as in Fig. 348; lancet as in Fig. 362; male genitalia as in Fig. 371) *bicolor* (Kirby)
- Legs black, foretibia may be paler; clypeus and supraclypeal area black 8
8. Forewing uniformly hyaline; thorax black with pronotum, mesonotal lateral lobes, and mesoscutellum orange *pumilio* (Kirby)
- Forewing fasciate or hyaline with apex more blackish; thorax with different color combination 9
9. Forewing black at base and below stigma, hyaline at center and at apex; thorax black with pronotum, mesopleuron, mesonotal lateral lobes and mesoscutellum orange (sheath as in Fig. 349; lancet as in Fig. 360) *nasuta* (Cameron)
- Forewing hyaline at base, blackish toward apex; thorax with different color combination 10
10. Thorax with only pronotum and mesoprescutum orange; female antenna longer than head width; lancet as in Fig. 358; male genitalia as in Fig. 370 *resa*, new species
- Thorax with pronotum, tegula, mesoscutellum, and metascutellum orange; female antenna shorter than head width; lancet as in Fig. 359; male genitalia as in Fig. 369 (sheath as in Fig. 352) *brevia*, new species



Figs. 338-354. *Didymia*. 338, Forewing and hindwing of *D. martini*. 339, Front view of head of *D. martini*. 340, Female antenna of *D. martini*. 341, Female antenna of *D. carbonaria*. 342, Mandibles of *D. trigemmis*. 343, Palpi of *D. martini*. 344, Palpi of *D. carbonaria*. Female sheaths of 345, *D. carbonaria*; 346, *D. unifasciata*; 347, *D. connarusae*; 348, *D. bicolor*; 349, *D. nasuta*; 350, *D. elegans*; 351, *D. trigemma*; 352, *D. breva*; 353, *D. martini*. 354, Female lancet of *D. trigemma*

11. Thorax black 12
- Thorax orange or reddish, at most black marks on lobes of mesonotum and/or on mesosternum 15
12. Legs black (lancet as in Fig. 364; abdominal segments 2-4 orange; antennal length subequal to head width) *teusa*, new species
- Legs white or mostly orange 13
13. Legs entirely white (forewing blackish with somewhat hyaline center band) *albipes* (Konow)
- Legs orange with some black on hindtibia and tarsus and sometimes on femora 14
14. Legs orange with hindtibia and tarsus sometimes black; forewing black at base, apex, and below stigma, with intervening areas hyaline; abdominal segments 2-6 orange (lancet as in Fig. 355; sheath as in Fig. 350; male genitalia as in Fig. 368) *elegans* (Klug)
- Legs orange with apices of mid- and hindfemora, apex of hindtibia, and entire hindtarsus black; forewing uniformly black, but somewhat paler beyond stigma; abdominal segments 1-6 orange *lugubris* (Klug)
15. Abdomen orange; mesoprescutum and/or mesonotal lateral lobes and mesosternum sometimes with black spots (forewing yellow with apex blackish; legs yellow with hindtarsus black; lancet as in Fig. 354; sheath as in Fig. 351; male genitalia as in Fig. 367) *trigemina* (Klug)
- Apical 2-4 segments of abdomen black; thorax entirely pale or with black marks 16
16. Thorax entirely orange; forewing yellowish with only apex black (lancet as in Fig. 356; sheath as in Fig. 353; male genitalia as in Fig. 366) *martini* (Lepelletier)
- Thorax with some black markings; forewing black at base and apex, sometimes also at center 17
17. Thorax orange with only lateral deflexed sides of mesonotal lateral lobes black; head black (legs orange; forewing black at base, apex, and center, with 2 yellowish bands) *bella* Malaise
- Black marks on mesosternum, mesoprescutum, and mesonotal lateral lobes; clypeus and supraclypeal area white 18
18. Legs orange; forewing black at base, apex, and center, with 2 yellowish bands; mesoscutellum orange *carinata* (Cameron)
- Legs orange with hindtarsus black; forewing black at base and apex, yellow at center; mesoscutellum usually black (lancet as in Fig. 357; sheath as in Fig. 346; male genitalia as in Fig. 365) *unifasciata* Smith

SPECIES

***albipes* (Konow), new combination — Brazil**
(Espírito Santo)

**Ptilia albipes* Konow 1901: 61. F. "Brasília (Espírito Santo)" (Budapest, F).— Konow 1905a: 16.— Malaise 1949: 8 (separation from *D. fumipennis*).— Oehlke and Wudowenz 1984: 365 (1 F syntype at Eberswalde).

Two females are at Budapest, both are labeled Espírito Santo and both have the label "typus, *Ptilia albipes* Konow 1901." One is hereby designated lectotype, the other a paralectotype, and they have been labeled such. I did not examine the syntype at Eberswalde.

***bella* Malaise — Brazil (Minas Gerais, Rio de Janeiro, São Paulo)**

**Didymia bella* Malaise 1949: 7-8. M. "Brazil (São Paulo)" (Stockholm, M).

The coloration of both sexes is similar. The female lancet of specimens studied from Itatiaya, Est. do Rio, is similar to that of *martini* (Fig. 356).

***bicolor* (Kirby), new combination — Brazil**
(Amazonas, Pará); Surinam

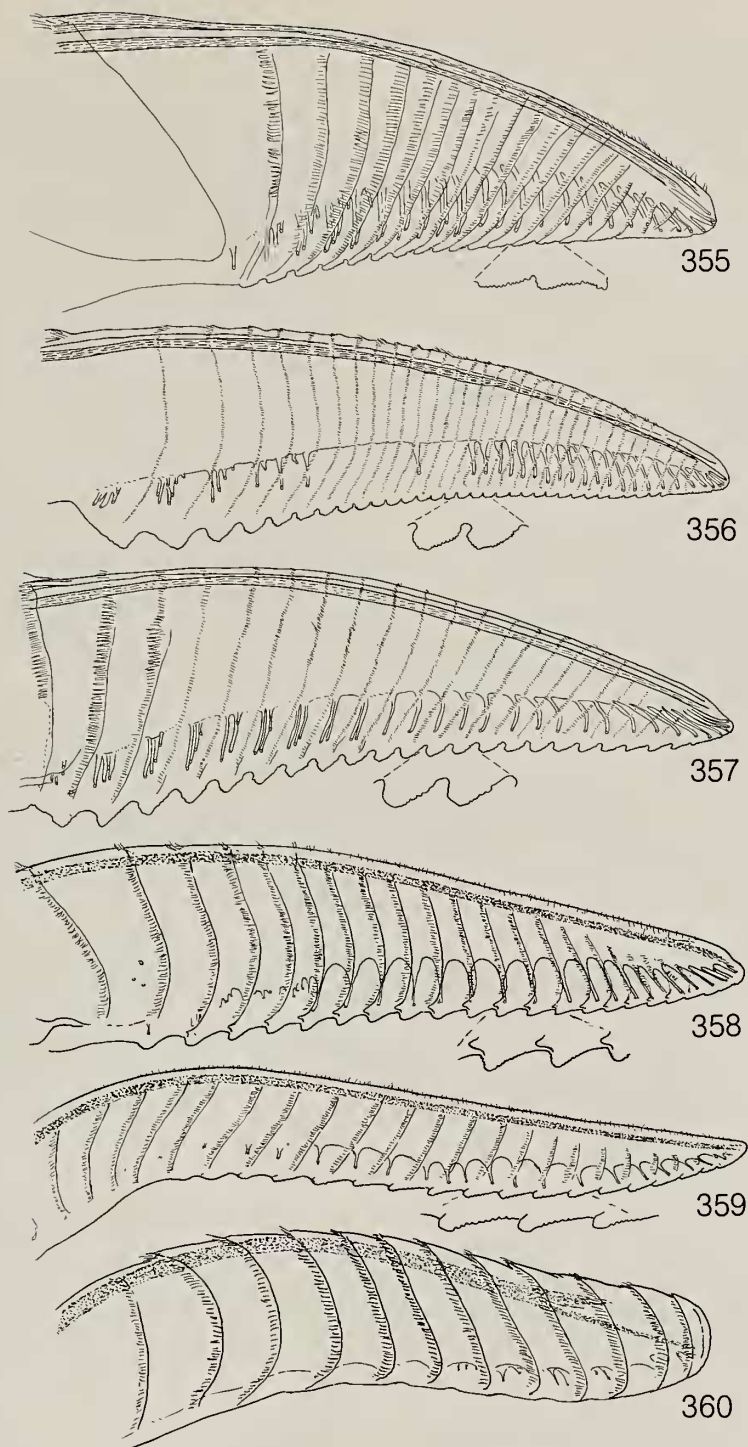
**Ptilia bicolor* Kirby 1882: 46-47, pl. 3, fig. 12. F. "Brazil, Tapajos" (London, F).— Dalla Torre 1894: 319.— Konow 1905a: 26.

The holotype is BM #1.143. I have seen a series associating the sexes from 60 km N Manaus, Amazonas, Brazil, and a single specimen from Surinam (Zanderij I.).

***brevia* Smith, new species — Brazil (D.F.)**

Didymia breva Smith.

Female.— Length, 5.7-6.0 mm. Black with pronotum, tegula, mesoscutellum, and metascutellum orange; apex of forefemur and foretibia whitish. Wings subhyaline, forewing a little darker from stigma to apex; veins and stigma black. Antennal length to head width as 4.8:5.2. Clypeus slightly emarginated at center; short, straight interantennal carina present; 3rd labial palpal segment and 4th maxillary palpal segment enlarged; lower interocular distance to eye length as 2.9:2.6; distances between eye and hindocellus,



Figs. 355-360. *Didymia*, female lancets. 355, *D. elegans*; 356, *D. martini*; 357, *D. unifasciata*; 358, *D. resa*; 359, *D. breva*; 360, *D. nasuta*.

hindocelli, and hindocelli and posterior margin of head as 0.8:1.0:1.5. Forewing with costa as broad as intercostal area; 3 cubital cells. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.5:1.8. Sheath as in Fig. 352. Lancet as in Fig. 359.

Male.—Length, 5.5 mm. Coloration similar to that of female. Antennal length to head width as 7.5:4.4. Lower interocular distance to eye length as 2.5:2.0; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.9:0.8:0.9. Genitalia as in Fig. 369.

Holotype.— $\bar{E}$, "Res. Ecol. IBGE, KM 0 BR 251 - DF, 26/IX-3/X/1980, T. Malaise 4: cerrado," "Brasilia, D.F., col. Braulio Dias" (Brasilia, IBGE).

Paratypes.—BRAZIL: Same locality as for holotype, 25/IX-2/X/1981, 5:C. Sujo (1 $\bar{E}$), 11-25/IX/1981, 4: cerrado (1 $\underline{M}$) (Brasilia, IBGE; Washington).

Remarks.—This species is black with only the pronotum, tegula, and meso- and metascutellum orange, the female antenna is shorter than the head width, and the postocellar area is about as broad as long, longer than in most other species of *Didymia*. The lancet and male genitalia as figured will also help separate *brevia* from other species.

carbonaria (Cameron), new combination — Brazil
(Amazonas, Pará)

**Dielocera carbonaria* Cameron 1878: 147-148. $\bar{E}$. "Villa Nova, Brazil" (London, $\bar{E}$).

Dielocerus carbonaria: Kirby 1882: 50.—Dalla Torre 1894: 322.

Dieloceros carbonarius: Konow 1905a: 24.

**Nematoneura mitellata* Konow 1906b: 186-187. $\bar{E}$. "Brasilia (Itaituba)" (Eberswalde, $\bar{E}$).—Oehlke and Wudowenz 1984: 396 (holotype). New synonymy.

Tanyphatna mitellata: Malaise 1937a: 50.

The holotype of *carbonaria* is BM #1.120. I have seen specimens from Uypiranga, Rio Negro, 14 km from Manaos, Amazonas, and Rio Javary, Amazonas, Brazil.

carinata (Cameron), new combination — Brazil

**Rusobria carinata* Cameron 1878: 151. $\bar{E}$. "Brazil" (London, $\bar{E}$).

Ptilia carinata: Kirby 1882: 46.—Dalla Torre 1894: 319.—Konow 1905a: 26.

The holotype is BM #1.142. This is the only specimen I examined.

connarusae Smith, new species — Brazil (D.F.)

Didymia connarusae Smith.

Female.—Length, 5.2-8.2 mm. Black, outer surface of foretibia whitish, hindtrochanter whitish to brownish, basal 4 terga laterally orange, basal 3 or 4 sterna orange. Forewing hyaline with large black area below stigma covering radial cell and adjacent areas and extending as a narrow band to posterior margin of wing; hindwing hyaline with blackish apex; veins and stigma black. Antennal length about 1 1/5X head width; 3rd segment uniformly thick, laterally flattened. Lower interocular distance slightly shorter than eye length, as 3.2:3.4; malar space linear; supraclypeal area and clypeus finely punctate, rest of head mostly shining; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.8:1.4:1.4. Length of hindbasitarsus shorter than length of following segments combined, subequal to following 3 segments combined. Sheath with stout, rounded scopae, Fig. 347. Lancet as in Fig. 361.

Male.—Unknown.

Holotype.— $\bar{E}$, "Brasilia, D. F., col. Braulio Dias," "Cerrado Lago Sul, 24-II-1976, female pondo ovos no galho jovem," "Planta hospedeira: *Connarus fulvus* Planchon" (Brasilia, IBGE).

Paratypes.—BRAZIL: Same locality as for holotype except 7-IV-1976, found dead on the ground under *Connarus fulvus* (1 $\bar{E}$); Sobradinho, D.F., Sifio St. Clemente, Ferreira (Faz. Paranoá), 30-X-1983, Braulio Dias, Pardo ovos em arbusto de *Connarus fulvus* c/± 75 cm de altura (1 $\bar{E}$); Brasilia, D.F., proxima Recor, 27-XII-83, Braulio Dias (4 $\bar{E}$); Res. Ecol. IBGE, KM 0 BR 251 - DF, 10-12-XII-83, J. Silva (1 $\bar{E}$), same except date, 8-9-XII-83 (1 $\bar{E}$) (Brasilia, IBGE; Washington).

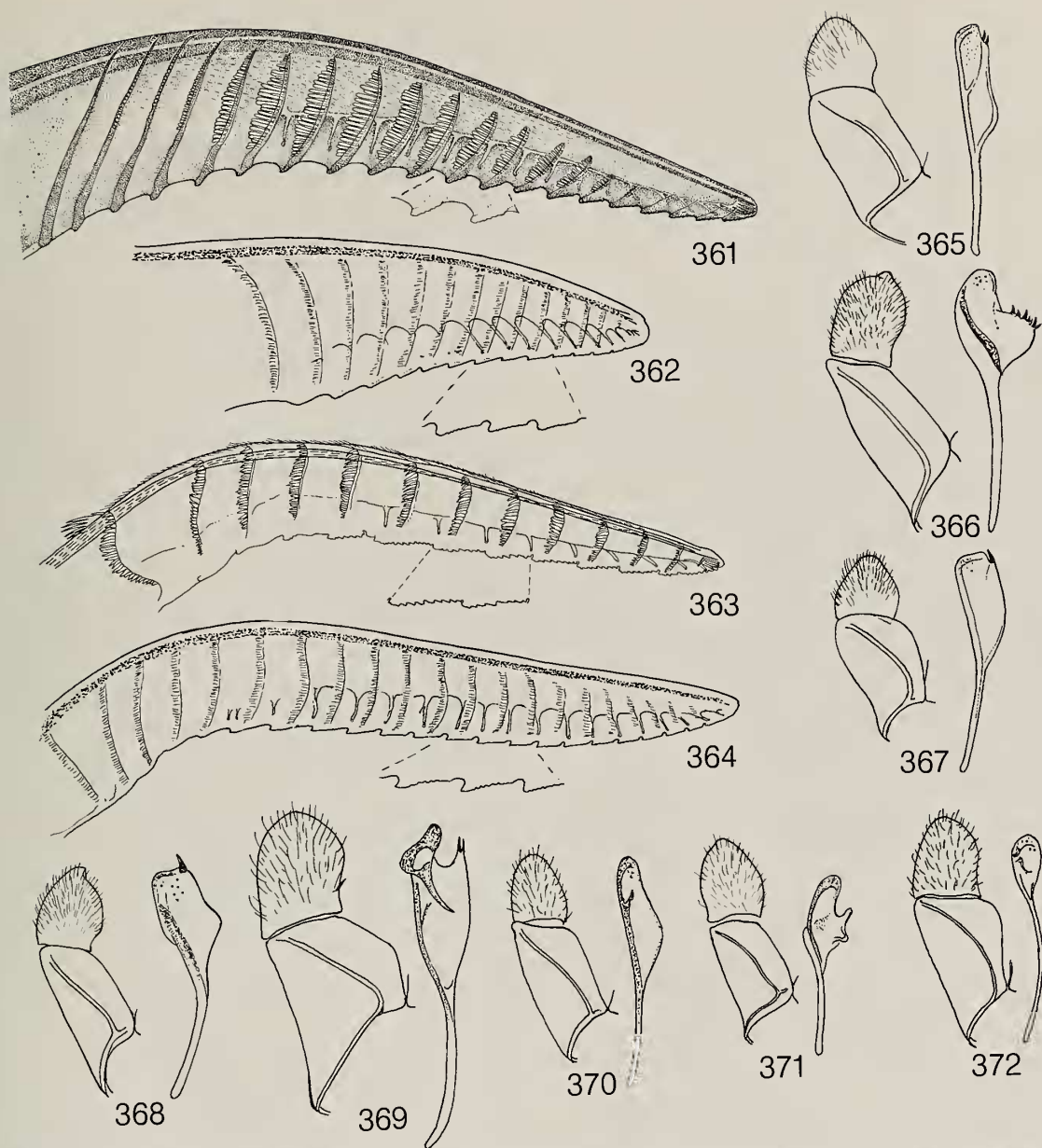
Host.—*Connarus fulvus* (Connaraceae), reared by B. F. S. Dias.

Remarks.—The black coloration with the basal terga laterally and basal sterna orange and hyaline wings with the black beneath the stigma will separate this species. The long annular spines of the lancet are also diagnostic. Though all specimens are structurally the same, the size ranges from 5.2 mm to 8.2 mm in length.

crassicornis (Cameron), new combination — Brazil
(Amazonas)

**Dielocera crassicornis* Cameron 1878: 146. $\bar{E}$. "Amazons" (London, $\bar{E}$).

Hemidianeura crassicornis: Kirby 1882: 50.—Dalla Torre 1894: 321.—Konow 1905a: 26.



Figs. 361-372. *Didymia*. Female lancets of 361, *D. connarusae*; 362, *D. bicolor*; 363, *D. carbonaria*; 364, *D. teusa*. Male genitalia of 365, *D. unifasciata*; 366, *D. martini*; 367, *D. trigemma*; 368, *D. elegans*; 369, *D. breva*; 370, *D. resa*; 371, *D. bicolor*; 372, *D. sp.* (Only Fig. 361 shaded.)

Tanyphatna discophora* Konow 1908a: 145. F. "Brasilia (S. Antonio do Icó)" (Eberswalde, F).— Oehlke and Wudowenz 1984: 377 (holotype). **New synonymy.

The holotype of *crassicornis* (BM #1.146) lacks the head, but other characters conform to *Didymia* and are the same as for *discophora* Konow. Two specimens studied from near Manaus, Brazil, are identical to *crassicornis*. There are four cubital cells in the forewing.

elegans (Klug) — Brazil (Rio de Janeiro, Santa Catarina, São Paulo)

**Hylotoma (Schizocera) elegans* Klug 1834: 247. F, M. "Brasilien" (Berlin, F).— Kriechbaumer 1884: 247.

Didymia elegans: Norton 1867: 60.— Malaise 1949: 8 (separation from *D. fumipennis*).

Ptilia elegans: Kirby 1882: 47.— Dalla Torre 1894: 320.— Konow 1905a: 26.

A female and a male at Berlin are the same species and bear the same data: "13719," "Brasil. v. Olfers." The female with the large green determination label of Klug is hereby designated lectotype; the male is a paralectotype. I have studied specimens from each of the above Brazilian states.

lugubris (Klug) — Brazil (Minas Gerais, Rio de Janeiro)

**Hylotoma lugubris* Klug 1834: 247. F. "Brasilien" (Berlin, F).— Kriechbaumer 1884: 294.

Didymia lugubris: Norton 1867: 60.

Ptilia lugubris: Kirby 1882: 47.— Dalla Torre 1894: 320.— Konow 1905a: 27.

Didymia fumipennis* Malaise 1949: 8. F. "Brazil" (Stockholm, F). **New synonymy.

The holotype of *lugubris* is labeled "Rio Jan., Beys." I have seen one specimen from "Mar de Hespanha, E. Minas, Brazil."

martini (Lepelletier) — Brazil (Espírito Santo, Minas Gerais, Rio de Janeiro)

Hylotoma martini Lepelletier 1823: 48. M. "E Brasilia" (Paris, F).— Lepelletier and Serville 1828: 573 (in subg. *Didymia*).— Klug 1834: 245.— Kriechbaumer 1884: 293.

Didymia martini: Brullé 1846: 669, pl. 47, fig. 8.— Norton 1867: 60.— Malaise 1949: 5 (syn.: *melanura* Lepelletier, *catinifera* Konow).

Ptilia martini: Kirby 1882: 45.— Dalla Torre 1894: 320 (*martini*).— Konow 1905a: 27.

**Ptilia melanura* Lepelletier and Serville 1828: 238. F. "Amérique méridionale" (Paris, F).— Dalla Torre 1894: 320.— Konow 1905a: 27.

**Tanyphatna catinifera* Konow 1906b: 188. F. "Brasilia" (Eberswalde, F).— Oehlke and Wudowenz 1984: 372 (holotype).

Ptilia catinifera: Malaise 1937a: 50.

A female specimen at Paris agrees with the traditional concept of this species and bears a handwritten label "melanura Lep." Another specimen at Paris is labeled "martini [] Lep." (middle word not legible). It has pale antennae and the supraclypeal area and clypeus are pale orange, and therefore does not exactly fit the description of *martini* ("antenna and head black"). This specimen is *Ptilia melanictera* (Klug), and if were regarded as the holotype, *martini* must be transferred to *Ptilia*. The specimen is also a female, not a male, further evidence that it is probably not the type of *martini*. I have seen specimens from each of the above Brazilian states.

nasuta (Cameron), **new combination** — Panama

**Ptilia nasuta* Cameron 1883: 44-45, pl. 3, fig. 1. F. "Panama, David, Chiriqui" (London, F).— Dalla Torre 1894: 320.— Konow 1905a: 27.

The holotype is BM #1.145. I have seen one specimen from Barro Colorado, Canal Zone, Panama.

pellos (Konow), **new combination** — Brazil (Pará)

**Tanyphatna pellos* Konow 1906b: 187-188. M. "Brasilia (Obidos)" (Eberswalde, M).— Oehlke and Wudowenz 1984: 403 (holotype).

This may be the male of *carbonaria*.

pumilio (Kirby), **new combination** — Brazil (Amazonas); Surinam

**Ptilia pumilio* Kirby 1882: 47, pl. 3, fig. 13. F. "Amazons" (London, F).— Dalla Torre 1894: 321.— Konow 1905a: 27.

The holotype at London has no type number. I saw one specimen from Zanderi I., Surinam.

resa Smith, **new species** — Brazil (D.F., Goiás)

Didymia resa Smith.

Female.— Length, 6.0-7.5 mm. Black with pronotum, sometimes tegula, mesoprescutum and adjacent areas of mesonotal lateral lobes orange; orange

on pronotum usually paler than that on mesonotum; apical 1/2 forefemur, foretibia, and about first 2 foretarsal segments whitish. Forewing hyaline at base, light blackish from base of stigma to apex; veins and stigma black. Antennal length to head width as 6.2:5.7. Lower interocular distance to eye length as 3.3:3.0; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:1.1:1.4; short, straight interantennal carina present; clypeus slightly emarginated at center; 3rd labial palpal segment and 4th maxillary palpal segment greatly enlarged; left mandible with 2 minute teeth at center. Forewing with costa swollen, broader than intercostal area; first cubital crossvein present or absent, therefore with either 3 or 4 cubital cells. Length of hindbasitarsus slightly longer than length of remaining tarsal segments combined. Sheath similar to that of *bicolor*, Fig. 348. Lancet as in Fig. 358.

Male.—Length, 5.5–6.8 mm. Coloration as for that of female but tegula usually black. Antennal length to head width as 10.0:5.1. Lower interocular distance to eye length as 3.0:2.3. Distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.9:1.1:1.4. Genitalia as in Fig. 370, with valve long, slender, rounded at apex and without spines.

Holotype.—E, "Res. Ecol. IBGE, KM 0 BR 251 - D.F., 5-11-X-1979, Equipe Ecol. An.," "Tenda Malaise, Cerrado 3A-17M-4" (Brasilia, IBGE).

Paratypes.—BRAZIL: Same data as for holotype except dates, trap numbers omitted, 12-19-IX-1970 (5 E), 24-31-X-1980 (1 E), 16-24-IX-1982 (1 E), 19-VIII-2-IX-1982 (1 E), 24-30-IX-1982 (1 E, 1 M), 16-VIII-1984 (1 E), 16-24-IX-1981 (1 E), 24-30-IX-1981 (2 E), 9-16-IX-1981 (1 E), 8-16-IX-1983 (2 E), 1-8-IX-1983 (1 E), 29-VIII-5-IX-1981 (1 E), 10-17-X-1980 (1 E, 1 M), 2-X-1978 (1 M), 25-IX-2-X-1981 (1 M), 1-25-IX-1981 (1 M); Goiás, Sta. Isabel, R. Araguaia, Isla do Banand, X-27 to XI-4 1960, B. Malkin leg (1 E) (Brasilia, IBGE; Chicago; Washington).

Remarks.—The hyaline wings with the apices somewhat blackish, mostly black legs, and black thorax with the pronotum and mesoprescutum orange separate *resa* from *crassicornis*, *soror*, *bicolor*, and *nasuta*. The latter three have fasciate wings (hyaline with black bands), the latter two have part of the mesepisternum orange, and *bicolor* has white legs.

soror (Kirby), new combination — Brazil

**Ptilia soror* Kirby 1882: 48, pl. 3, fig. 14. E. "Amazons" (London, E).—Dalla Torre 1894: 321.—Konow 1905a: 27.

The holotype is BM #1.144, labeled "Braz." I have not seen other specimens.

teusa Smith, new species — Brazil (D.F.)

Didymia teusa Smith.

Female.—Length, 6.0 mm. Black; palpi brownish; apex of forefemur, foretibia, and foretarsus brownish; abdominal segments 2-4 orange with black spots at center of terga. Wings hyaline, forewing with black stripe below stigma; veins and stigma black. Antennal length to head width as 4.7:4.7. Clypeus slightly emarginated at center; 3rd labial palpal segment and 4th maxillary palpal segment enlarged; short, straight interantennal carina present; lower interocular distance to eye length as 3.5:3.4; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.9:0.9:0.7. Forewing with costa as broad as intercostal area; 3 cubital cells. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.6:1.8. Sheath similar to that of *bicolor*, Fig. 348. Lancet as in Fig. 364, with short annular spines and serrulae flat.

Male.—Unknown.

Holotype.—E, "Res. Ecol. IBGE, KM 0 BR 251 - DF, 25/IX-2/X/1981, T. Malaise 2: cerrado" (Brasilia, IBGE).

Remarks.—The coloration is similar to that of *connarusae*, but the lancet is distinct in that the serrulae are flat and the annular spines are short. Additionally in *teusa*, the length of the antenna is subequal to the head width, and the dark band below the stigma in the forewing is not so broad. In *connarusae*, the antenna is one and a half times the head width and the black on the forewing is broader, appearing as a large spot below and around the stigma.

trigemina (Klug) — Brazil (Mato Grosso, Pará); Peru

**Hylotoma trigemina* Klug 1814: 307-308. E. "Brasilien" (Berlin, E).—Klug 1834: 246.—Kriechbaumer 1884: 73, 293.

Didymia trigemina: Norton 1867: 61.

Ptilia trigemina: Kirby 1882: 45.—Dalla Torre 1894: 321.—Konow 1905a: 27.—Forsius 1934: 48 (syn.: *nobilis* Forsius).

**Didymia verticalis* Spinola 1851: 6-7. M. "Para" (Torino, M).
New synonymy.

Ptilia verticalis: Kirby 1882: 45.—Dalla Torre 1894: 321.—Konow 1905a: 27.

**Hemidianeura nobilis* Forsius 1925a: 6-8. E. "Brasilia, Amazonas, Rio Autáz, Cururuzinho" (Stockholm, E).

I have studied specimens from Chapada, Mato Grosso, and Santarem, Pará, Brazil, and Dept. Loreto, Pucallpa, Peru.

uberaba (Brèthes), new combination — Brazil
(Minas Gerais)

**Ptilia uberaba* Brèthes 1927: 335. F. "Uberaba, Minas" (Eberswalde, F).— Oehlke and Wudowenz 1984: 417 (holotype).

The wing venation places *uberaba* in *Didymia*; in appearance, however, it resembles species in *Triptenus*, but that genus lacks an anal cell in the hindwing.

unifasciata Smith - Panama

**Didymia unifasciata* Smith in Kimsey and Smith 1985: 192-195, fig. 1-5, 11-19. F, M, larva. "Trinidad Rio, Pan." (Washington, F) (larva, host a, life history notes).

Host: a) *Rouria glabra* (Connaraceae).

Genus **DUCKEANA** Malaise

Duckeana Malaise 1941: 137. Type species: *Ptenus prodigus* Konow. Orig. desig.

Antennal length shorter than head width; first segment longer than broad, 2nd segment broader than long, 3rd segment of female antenna compressed. Eyes converging below, lower interocular distance slightly greater than eye length; head from above broadened behind eyes, postocellar area 1.5X broader than long; interantennal ridge broad and round, protuberant in side view; malar space linear; clypeus and labrum subtruncate; length of maxillary palpus subequal to eye length, segments of labial and maxillary palpi slender, of uniform width (Fig. 374). Forewing (Fig. 373) with radial cell indistinctly open (apex faint and could appear closed); costa swollen, broader than intercostal area; 3 cubital cells, first cubital crossvein represented by a stub; last closed cubital cell longer on radius than on cubitus; basal anal cell present. Hindwing without anal cell. Hindtibia slightly compressed and broadened toward apex; length of hindbasitarsus a little shorter than length of remaining tarsal segments combined; tarsal claws simple.

Malaise's 1941 description was in a key, but he gave a more detailed description in 1942. Malaise related this genus to *Schizocerella*, probably because of the absence of the anal cell in the hindwing. Though

it shares this with *Schizocerella*, the larger eyes which converge below, head broadened behind the eyes from above, the last closed cubital cell of the forewing which is longer on the radius than on the cubitus, and unusual slender sheath (Figs. 375, 376) preclude its placement there. It could also be confused with some other genera that lack an anal cell in the hindwing, such as *Triptenus*, *Tanymeles*, and some *Hemidianeura*, but *Duckeana* has uniformly slender, short palpi unlike any members of these genera and the radial cell of the forewing apparently open at its apex. Since only one specimen is known, I am keeping *Duckeana* separate. Several characters, including the radial cell of the forewing which appears open at its apex, the number of cubital cells of the forewing, and characters in the male, need to be evaluated by a study of longer series.

SPECIES

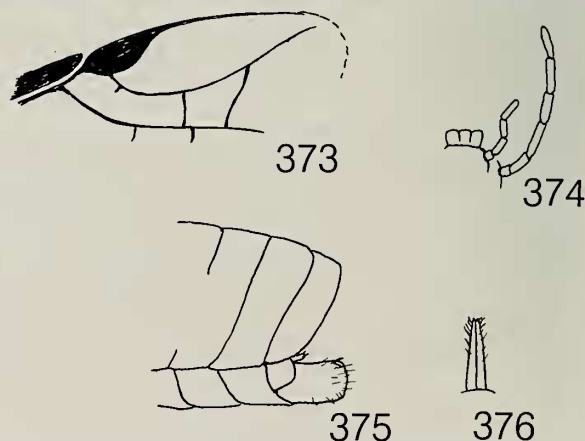
prodiga (Konow) — Brazil (Pará)

**Ptenus prodigus* Konow 1906b: 184-185. F. "Brasilia (Obidos)" (Eberswalde, F).— Oehlke and Wudowenz 1984: 406 (holotype).

Ptenos prodigus: Forsius 1925: 5.

Duckeana prodigus: Malaise 1941: 137.— Malaise 1942: 105.

Only the holotype was examined: length, 7.2 mm; antenna black with 3rd segment paler at base and beneath; head and mouthparts blackish; thorax black with pronotum, parapteron, upper 1/4 mesopleuron, and most of mesonotum orange yellow, mesonotum with large black areas on prescutum and lateral lobes; abdomen and sheath black; legs black, paler to dark orange are: foreleg, midfemur, midtibia, and inner surface of hindtibia; wings hyaline, forewing lightly



Figs. 373-376. *Duckeana prodiga*. 373, Apex of forewing. 374, Palpi. 375, Apex of abdomen and lateral view of female sheath. 376, Dorsal view of female sheath.

blackish from base of stigma to apex; sheath bladelike (Figs. 375, 376), with apical terga appearing to overhang sheath.

Genus **DURGOA** Malaise

Durgoa Malaise 1937a: 50-51. Type species: *Tanyphatna exilipalpis* Konow. Orig. desig.

Antennal length slightly longer than head width, with 1st segment longer than broad, 2nd segment about as long as broad, 3rd segment of female antenna slender, oval in cross section (Fig. 381). Eyes small, slightly converging below, lower interocular distance greater than eye length (Fig. 378); head from above slightly broadened behind eyes; clypeus subtruncate; malar space less than or equal to diameter of front ocellus; supraclypeal and interantennal areas convex, without sharp interantennal carina, with furrow on interantennal area; palpi short, maxillary palpus shorter than or subequal to eye length, 3rd segment of labial palpus enlarged, 4th segment of maxillary palpus slightly enlarged (Fig. 380); mandibles rather broad at base, tapering to apex, left mandible simple, right mandible with basal tooth (Fig. 379). Forewing (Fig. 377) with costa narrower or equal to intercostal area; radial cell closed, with short accessory vein at apex; 4 cubital cells, last closed cell longer on radius than on cubitus; distance between M and Rs+M on Sc+R half or more

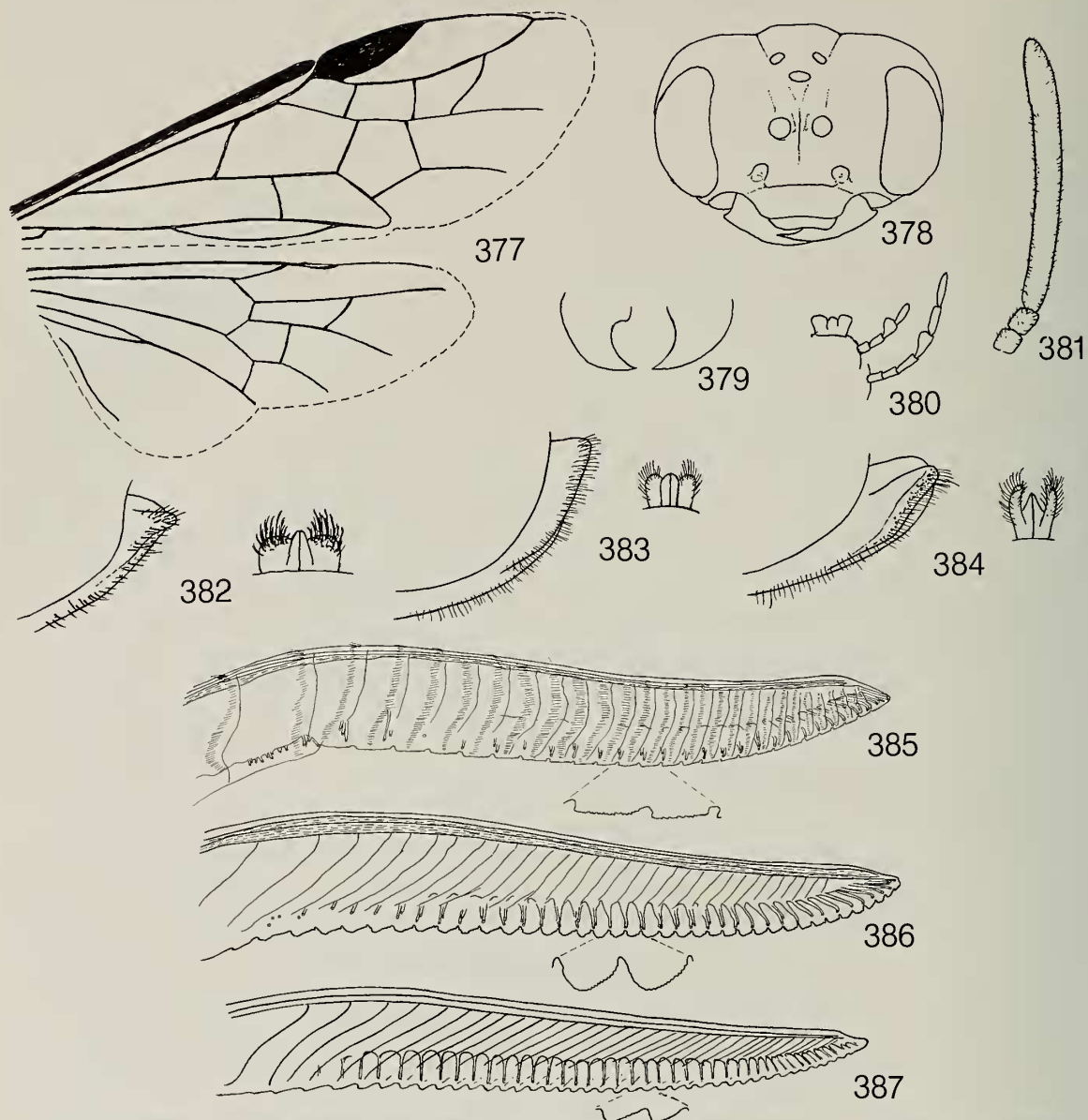
length of vein M; small basal anal cell present. Hindwing (Fig. 377) with anal cell, cell a little longer than its petiole. Length of hindbasitarsus subequal in length to following tarsal segments combined; tarsal claws simple.

Most species of this genus are relatively large, 10-11 mm long (an exceptional specimen is 15 mm long) and are yellow and black except *nigra* which is black with reddish-orange marks on the thorax. I have not seen associated males. The genus is recognized by the large size, second antennal segment about as long as broad, convex interantennal area, small eyes with the lower interocular distance greater than the eye length, head from above broadened behind the eyes, mandibles enlarged at bases, closed radial cell of the forewing, last closed cubital cell of the forewing longer on the radius than on the cubitus, presence of an anal cell in the hindwing, and long, multisegmented female lancets (Figs. 385-387). *Adurgoa* is similar, but that genus has the 2nd antennal segment broader than long, lacks a furrow on the interantennal area, the last closed cubital cell is quadrate, the palpal segments are uniformly narrow, and the female lancet is shorter, with 16 or fewer segments (Figs. 313-315).

Several specimens were taken from leaves of Leguminosae. Other than this, hosts and biologies are not known. Representatives occur in Peru, Venezuela, and most of Brazil.

KEY TO SPECIES

1. Wings uniformly, darkly or lightly black infuscated, veins and stigma black; thorax entirely yellow or reddish orange and black **2**
- Wings yellowish with apex beyond stigma black, veins and stigma yellow in yellow area; thorax yellow with black only on mesosternum and mesoprescutum **3**
2. Thorax orange yellow; abdomen yellow with apical 2 or 3 segments black; sheath as in Fig. 384; lancet as in Fig. 386 *mattogrossensis* Malaise
- Thorax black with following red orange: pronotum (except center), mesonotum (except triangular spot on prescutum and center of scutellum), upper 2/3 mesepisternum, upper 1/2 mesepimeron, and tegula; abdomen black; sheath as in Fig. 382, lancet as in Fig. 387 *nigra* Smith
3. Apical 3/4 hindtibia black; mesoprescutum and each side of mesosternum blackish, sometimes mesonotal lateral lobes, tegula, and most of mesepisternum also black; sheath similar to that of *exilipalpis* *atriceps* (Kirby)
- Legs entirely yellow orange; thorax entirely orange or black areas only on each side of mesosternum and lower mesepisternum; sheath as in Fig. 383 (lancet as in Fig. 385) *exilipalpis* (Konow)



Figs. 377-387. *Durgoa*. 377, Forewing and hindwing of *D. exilipalpis*. 378, Front view of head of *D. exilipalpis*. 379, Mandibles of *D. exilipalpis*. 380, Palpi of *D. exilipalpis*. 381, Female antenna of *D. nigra*. Female sheaths of 382, *D. nigra*; 383, *D. exilipalpis*; 384, *D. mattogrossensis*. Female lancets of 385, *D. exilipalpis*; 386, *D. mattogrossensis*; 387, *D. nigra*.

SPECIES

atriceps (Kirby) — Brazil (Espírito Santo)

**Ptenus atriceps* Kirby 1882: 53, pl. 4, fig. 8. F. "Brazil ? Rio Janeiro ?" (London, F.).

Ptenos atriceps: Dalla Torre 1894: 323.

Hemidianeura atriceps: Konow 1905a: 26.

Durgoa atriceps: Smith 1981: 283.

The holotype is BM #1.147. It lacks locality data. I have seen one specimen from "Corrego do Ita, E. Santo, Brazil."

exilipalpis (Konow) — Brazil (Santa Catarina)

**Tanyphatna exilipalpis* Konow 1906b: 188-189. F. "Brasilia (Colon, Hansa)" (Eberswalde, F.).—Oehlke and Wudowenz 1984: 380 (holotype).

Durgoa exilipalpis: Malaise 1937a: 50-51.

Other than the holotype, I have seen one specimen from Nova Teutonia, Santa Catarina.

matto grossensis Malaise — Brazil (Bahia, Mato Grosso, Minas Gerais); Peru; Venezuela.

**Durgoa matto grossensis* Malaise 1937a: 51, fig. 1. F. "Matto Grosso" (Paris, F.).

Host: Specimens from Bahia are labeled "on leaves of Leguminosae."

A specimen from Peru (Middle Rio Ucayali) is similar structurally, but has the clypeus and supraclypeal area orange; the head is all black in other specimens examined. Additional localities are Brazil (Mar de Hespanha, E. Minas) and Venezuela (Guatire Valley, "El Marquez"; Rancho Grande, E. Aragua).

nigra Smith — Brazil (D.F., Goiás)

**Durgoa nigra* Smith 1980: 281-282, fig. 13-15. F. "Res. Ecol. IBGE, Km 0 BR 251 - DF" (Brasília, IBGE, F.).

I have seen one specimen labeled "Faz. Paraíso, 8-2-1962, Brasil GO."

Genus **HEMIDIANEURA** Kirby

Ptenos Norton 1872: 77. Preoccupied by *Ptenos* Gray 1843.

New synonymy. Type species: *Ptenos niger* Norton. Desig. by Rohwer 1911a.

Hemidianeura Kirby 1882: 48. Type species: *Hemidianeura nigricornis* Kirby. Desig. by Rohwer 1911a.

Ptenus Kirby 1882: 51. New name for *Ptenos* Norton.

Ptenellus Malaise 1937a: 56. New name for *Ptenos* Norton.

Type species given as *Ptenos nigripictus* (!) Norton, but a new name takes the same type species as the preoccupied name.

Oigodianeura Malaise 1957: 7-8. **New synonymy.** Type species: *Hemidianeura coeliaca* Konow. Orig. desig.

Argenia Malaise 1949: 59-60. **New synonymy.** Type species: *Argenia viridana* Malaise. Monotypic.

Antenna (Fig. 394) with 1st segment longer than broad, 2nd segment as broad as or broader than long, 3rd segment of female antenna slender, round or oval in cross-section, tapering to apex, commonly curved; antennal length longer than head width. Clypeus subtruncate or with shallow central, semicircular emargination (Fig. 395); malar space linear to slightly evident; eyes large, converging below, lower interocular distance usually less than eye length (Fig. 389); head from above sharply narrowing behind eyes (Fig. 390); interantennal carina low, round to sharp, not extending onto convex supraclypeal area; maxillary palpus as long as or longer than eye length, 3rd segment of labial palpus enlarged, 4th segment of maxillary palpus slightly to moderately enlarged (Figs. 392, 393); left mandible simple or with two small teeth or crenulations, right mandible with basal tooth (Fig. 391). Forewing (Fig. 388) with radial cell closed, with short apical accessory vein; costa swollen, equal to or broader than intercostal area; 4 cubital cells, last closed cell rectangular or quadrate, as long as or longer on cubitus than on radius; distance between M and Rs+M on Sc+R almost equal to length of vein M; small basal anal cell present. Hindwing (Fig. 388) with or without anal cell, if present cell shorter than or subequal in length to its petiole. Length of hindbasitarsus subequal to or slightly longer than length of following tarsal segments combined; tarsal claws simple.

Most species are moderate in size, 6.0-8.0 mm long. The genus is recognized by the forewing venation which has a closed radial cell with an accessory vein at its apex and 4 cubital cells with the last closed cell characteristically quadrate or rectangular, by the large eyes which are usually closer together than the eye length, and by the usually curled antennae.

Ptenus is synonymized here since its type species, *niger* (= *texanus*), corresponds to the definition of

Hemidianeura. Among the species in my 1970 revision of *Ptenus*, *texanus* and *vanus* are characteristic of *Hemidianeura* and are transferred here. The other species treated in that revision are now placed in a new genus, *Zynzus*. The two species transferred to *Hemidianeura* are those with a shallow, central semi-circular emargination of the clypeus. *Oigodianeura* was proposed by Malaise because of the absence of an anal cell in the hindwing. This is variable in *Hemidianeura*, where, even in at least two species, *plumicornis* and *plaumanni*, the anal cell is present or absent. All other characters of those species placed in *Oigodianeura* by Malaise (1957) are similar to *Hemidianeura*. *Argenia* also belongs here even though the holotype of *A. viridana* has the last closed cubital cell slightly longer on the radius than on the cubitus. In other specimens of *A. viridana* I have seen, the last closed cubital cell is as long on the radius as on the cubitus, and this venation in the holotype may be exceptional.

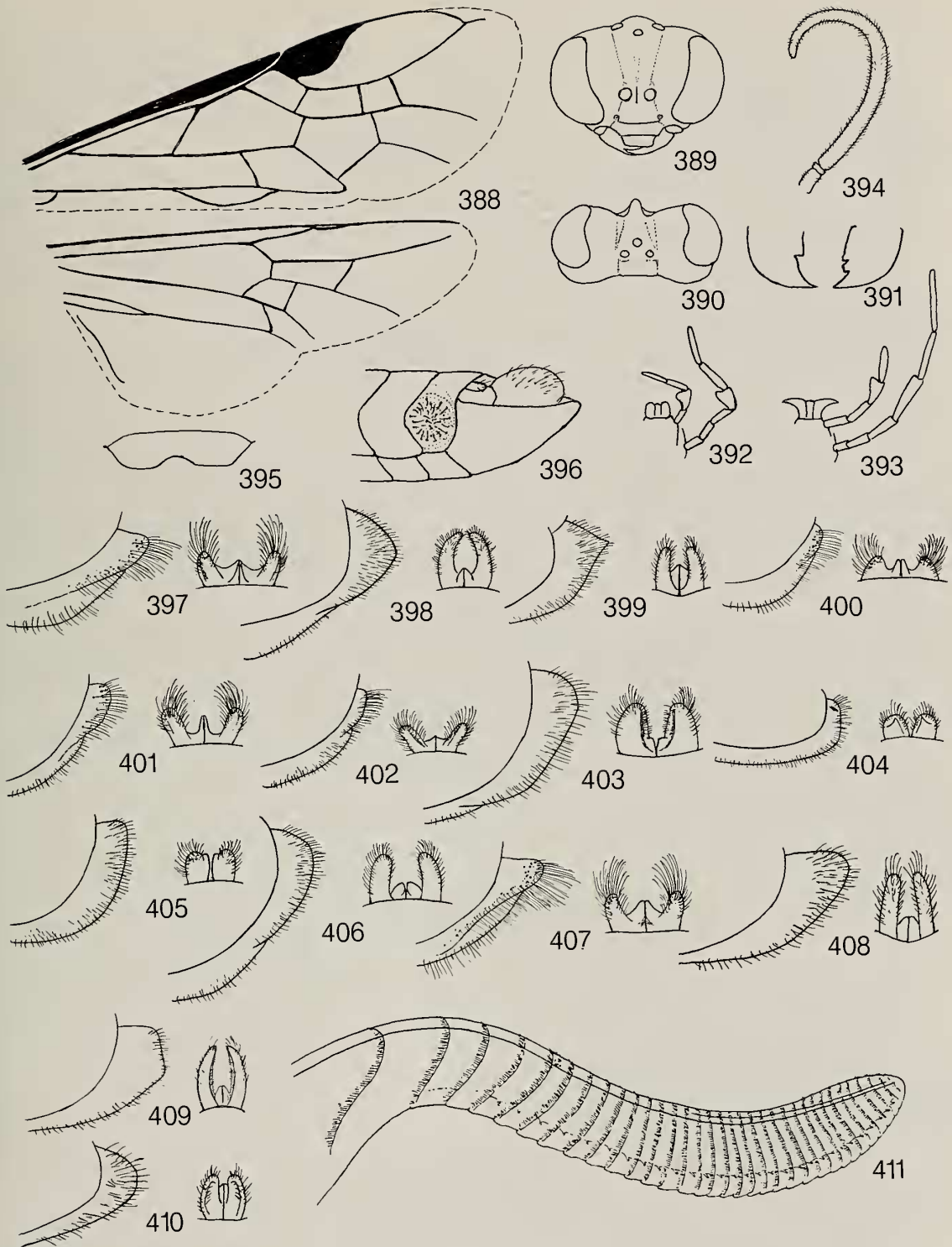
Males of two species, *natna* and *nantina*, have unusual round depressions on the abdomen, one on each side of the eighth tergite (Fig. 396). They are deep, round, and with numerous, stiff inwardly projecting hairs. I have not seen this in other argids and do not know their function.

Species groups may be formed on the basis of the emarginate clypeus and long slender lancet which are characteristic of *texanus*, *evansi*, *dasua*, and *vanus*. All others have a subtruncate clypeus and differently shaped lancet.

Though Malaise (1937a, 1957) gave a key to species, there are numerous additions and changes represented in this classification. The genus is now known from southwestern United States to northern Argentina. Hosts are not known. Only a few males are associated, and the following key is based mostly on females. The part of the key dealing with males should be used with caution.

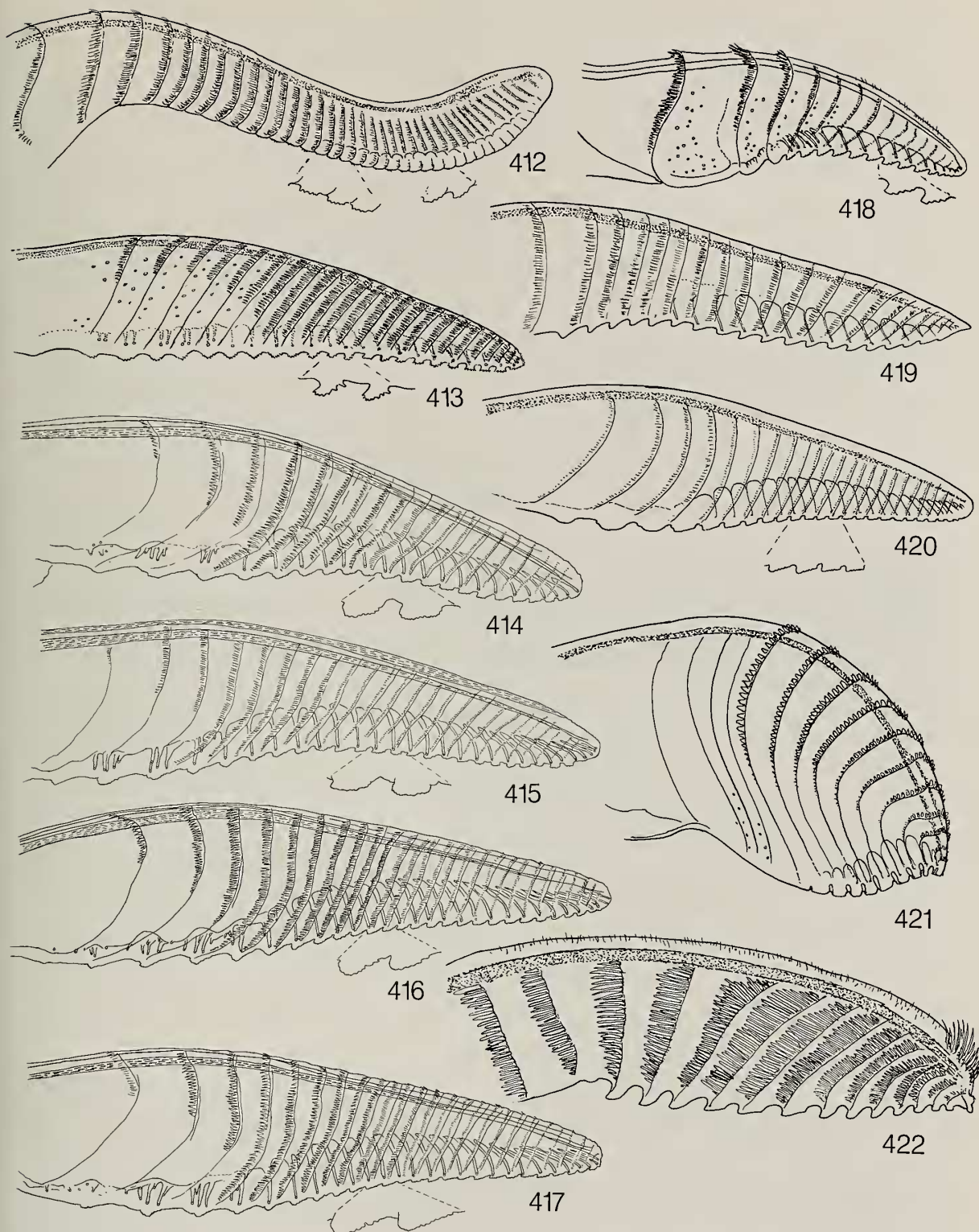
KEY TO SPECIES

1. Female 2
— Male 30
2. Forewing bicolored, hyaline or yellowish with apex and sometimes base infuscated black 3
— Forewing uniformly colored, light to dark blackish 9
3. Thorax black, pronotum, mesoscutellum, and spot on upper mesopleuron may be reddish 4
— Thorax mostly yellow or orange, black marks sometimes present on mesonotum or mesosternum 5
4. Forewing infuscated black at base and apex, hyaline at center; thorax black; abdomen orange with apical 3-4 segments black; (sheath as in Fig. 407, lancet as in Fig. 416; anal cell of hindwing present or absent) *plumicornis* (Klug)
— Forewing yellowish with apices infuscated black; thorax black with mesoscutellum and spot beneath base of wings pale; abdomen black with basal 5 terga and sterna pale at center (hindwing without anal cell) ... *coeliaca* (Konow)
5. Face below antenna whitish or yellowish; base of forewing with infuscated black spot; hindwing with anal cell ... 6
— Head black; base of forewing yellowish; hindwing usually without anal cell 7
6. Mesonotal lateral lobes and sometimes mesoprescutum with black marks; base of forewing broadly infuscated black; legs yellow, apices of fore- and midtarsi blackish; sheath similar to that of *propleuralis*, Fig. 397 *apicalis* Mocsáry
— Mesonotum orange or only prescutum with black mark; only extreme base of forewing with small black spot; tibiae and tarsi usually black; sheath as in Fig. 405 (lancet as in Fig. 419) *nigricornis* Kirby
7. Thorax and legs orange yellow; 3 basal abdominal segments orange; 1st and 2nd antennal segments and base of 3rd yellowish brown; clypeus yellowish *flavicornis* Benson
— Thorax orange yellow or with black marks on mesonotum and sometimes mesosternum; legs with tibiae and tarsi black (base of tibiae may be pale); basal 5 or more abdominal terga orange; antenna black; clypeus black 8
8. Thorax yellowish, only cervical sclerites somewhat blackish; lancet as in Fig. 420; sheath as in Fig. 397. *propleuralis* (Malaise)
— Each mesonotal lobe of thorax with black marks, mesosternum partly black; lancet as in Fig. 417; sheath similar to that of *plumicornis*, Fig. 407 (anal cell of hindwing present or absent) *plaumanni* (Malaise)
9. Entirely black (sheath as in Fig. 399, lancet as in Fig. 421) *atripes* (Holmgren)
— White or orange markings on some part of head, body, or legs 10



Figs. 388-411. *Hemidianeura*. 388, Forewing and hindwing of *H. ehippiata*. 389, Front view of head of *H. delta*. 390, Dorsal view of head of *H. delta*. 391, Mandibles of *H. delta*. 392, Palpi of *H. natna*. 393, Palpi of *H. delta*. 394, Female antenna of *H. delta*. 395, Clypeus of *H. texana*. 396, Apex of male abdomen showing cavities of *H. natna*. Female sheaths of 397, *H. propleuralis*; 398, *H. quidra*; 399, *H. aripes*; 400, *H. delta*; 401, *H. ehippiata*; 402, *H. dominicaensis*; 403, *H. plana*; 404, *H. viridana*; 405, *H. nigricornis*; 406, *H. dasua*; 407, *H. plumicornis*; 408, *H. nantinus*; 409, *H. texana*; 410, *H. natna*. 411, Female lancet of *H. texana*

10. Abdomen entirely or partly orange 11
- Abdomen black 13
11. Legs yellow orange, only apex of hindtibia and hindtarsus black; thorax orange with mesoprescutum black (sheath as in Fig. 404; lancet as in Fig. 422) *viridana* (Malaise)
- Legs black, foretibia whitish; thorax black 12
12. Head black; abdomen orange; sheath as in Fig. 403; lancet as in Fig. 423 *plana*, new species
- Supraclypeal area and usually clypeus, labrum and palpi whitish to dull orange; abdomen black above, orange below; sheath similar to that of *delta* as in Fig. 400; lancet as in Fig. 424 *menkei*, new species
13. Legs white, contrasting with black tarsi and apices of tibiae; part of coxae and femora may be blackish 14
- Legs black, part of foreleg, tibiae or knees may be whitish 20
14. Thorax black (sheath similar to that of *plumicornis*, Fig. 407; lancet as in Fig. 414) *leucopoda* (Cameron) (in part)
- Part of thorax orange or reddish 15
15. Mesonotum black, lateral corners may be reddish and mesopleuron may be reddish 16
- Mesonotum mostly red or orange, sometimes with black mark on prescutum and/or scutellum; mesopleuron red or black 17
16. Mesopleuron reddish; head black; larger, ca. 7.0 mm long; Mexico; sheath similar to that of *plumicornis*, Fig. 407; lancet as in Fig. 415 *filiformis* (Norton)
- Mesopleuron black; face below antennae whitish; smaller, ca. 4.0 mm long; Dominica; sheath as in Fig. 402, lancet as in Fig. 425 *dominicaensis*, new species
17. Legs, mesonotum, mesopleuron, and face below antenna pale; sheath similar to that of *dominicaensis*, Fig. 402 *thoracica* (Ashmead)
- Some black on one or more of above areas 18
18. Mesonotum red with prescutum and scutellum black; pronotum white; mesopleuron black; 1st and 2nd antennal segments blackish to dark reddish (sheath as in Fig. 400; lancet as in Fig. 426) *delta* Malaise
- Mesonotum and mesopleuron reddish, sometimes with black mark on mesoprescutum or mesoscutellum; pronotum orange; 1st or 1st and 2nd antennal segments white or black 19
19. Antenna black; mesoscutellum black; sheath similar to that of *plumicornis*, Fig. 407; lancet as in Fig. 413 *midea*, new species
- First or 1st and 2nd antennal segments usually all or partly white; mesonotum red with prescutum usually black; sheath similar to that of *plumicornis*, Fig. 407; lancet as in Fig. 414 *leucopoda* (Cameron) (in part)
20. Entirely black except for some white on tibiae (clypeus emarginated at center) 21
- Some yellow, orange, or reddish markings on head or thorax 23
21. Legs black (lancet long, serrulae flat, Fig. 427; sheath similar to that of *texanus*, Fig. 409) *evansi*, new species
- Legs with tibiae mostly white or apices of femora and bases of tibiae whitish 22
22. Legs black with apices of femora and bases of tibiae whitish; lancet long, as in Fig. 428; sheath as in Fig. 408 *nantina*, new species
- Legs black with apices of fore- and midfemora, fore- and midtarsi, and basal 3/4 of hindtibia white; lancet short, as in Fig. 429; sheath as in Fig. 406 *dasua*, new species
23. Thorax black with pronotum and tegula whitish (supraclypeal area laterally, foreleg, apices of femora, mid- and hindtibiae, and basal lateral area of abdomen whitish; sheath similar to that of *nigricornis*, Fig. 405) ... *fucata* (Konow)
- Mesonotum partly red 24
24. Tibiae whitish (mesonotum red with prescutum black) 25
- Legs black, foretibia may be whitish 27
25. Pronotum black (sheath as in Fig. 398; lancet as in Fig. 430) *quidra*, new species
- Pronotum reddish 26
26. Sheath slender with small scopae (Fig. 409); clypeus emarginated at center (Fig. 395); lancet as in Fig. 411 *texana* (Norton)
- Sheath broad, with large lateral scopae (similar to that of *ephippiata*, Fig. 401); clypeus subtruncate; lancet as in Fig. 431 *kuscheli* Malaise (in part)
27. Pronotum, mesonotum, and tegula reddish; clypeus emarginate (as in Fig. 395) (sheath similar to *texana*, Fig. 409; lancet as in Fig. 412) *vana* (Smith)
- One or more of above areas partly black; clypeus subtruncate 28



Figs. 412-422. *Hemidianeura*, female lancets. 412, *H. vana*; 413, *H. midea*; 414, *H. leucopoda*; 415, *H. filiformis*; 416, *H. plumicornis*; 417, *H. plaumanni*; 418, *H. nana*; 419, *H. nigricornis*; 420, *H. propleuralis*; 421, *H. atripes*; 422, *H. viridana*.

28. Pronotum and tegula usually black; mesonotum at most with black mark on prescutum (sheath as in Fig. 401; lancet as in Fig. 432) *ephippiata* (Klug)
 — Pronotum and tegula usually reddish; both mesoprescutum and mesoscutellum with black marks 29
29. Lancet short, Fig. 418; sheath as in Fig. 410 *natna* Smith
 — Lancet long, Fig. 431; sheath similar to that of *ephippiata*, Fig. 401 *kuscheli* Malaise (in part)
30. Abdomen orange, apical 2 or 3 segments may be black. 31
 — Abdomen black, at most with basal 2 segments brownish to orange 33
31. Thorax and legs black *mexicana* (Cresson)
 — Thorax and legs extensively orange 32
32. Thorax black with only pronotum and tegula yellow orange; genitalia as in Fig. 438 *viridana* (Malaise)
 — Thorax orange with mesonotal lateral lobes and tegula black; genitalia as in Fig. 440 *nigricornis* Kirby
33. Basal abdominal segments brownish to orange 34
 — Abdomen black 35
34. Legs black, only foretibia whitish; thorax black with posterior margin of pronotum and mesonotum except black marks on prescutum and scutellum, red *ruminata* (Konow)
 — Legs orange with tibiae and tarsi black; thorax red with mesoprescutum and 2 marks on mesosternum black *fuscipennis* Mocsáry
35. Legs white, contrasting with black apex of tibiae and tarsi 36
 — Legs black, at most with white on tibiae and apices of femora or only foretibia 38
36. Antennal segments 1 and 2 black (thorax black with pronotum and sometimes mesopleuron red) *filiformis* (Norton)
 — Antennal segments 1 and 2 usually white 37
37. Mesopleuron and mesonotum black; supraclypeal area white; genitalia as in Fig. 436 *dominicaensis*, new species
 — Mesopleuron, at least upper portion, and mesonotum mostly red; supraclypeal area usually black; genitalia as in Fig. 437 *leucopoda* (Cameron)
38. Mesonotum red with prescutum or prescutum and scutellum black (legs black, only foretibia whitish). 39
 — Mesonotum black 40
39. Mesonotum red with only prescutum usually black; 8th tergite without lateral pits *ephippiata* (Klug)
 — Mesonotum red with prescutum and scutellum black; 8th tergite with round, deep pit on each side (Fig. 396) (genitalia as in Fig. 435) *natna* Smith
40. Eighth tergite with round, deep pit on each side (Fig. 396) (legs black or with extreme apices of femora and bases of tibiae whitish; genitalia as in Fig. 441) *nantina*, new species
 — Eighth tergite without pits 41
41. Legs black with tibiae whitish or partly white (thorax black or sometimes with pronotum reddish; genitalia as in Fig. 433) *texana* (Norton)
 — Legs black with only foretibia whitish 42
42. Thorax black; genitalia as in Fig. 434 *vana* (Smith)
 — Thorax with pronotum and mesonotum red; genitalia as in Fig. 439 *quidra*, new species

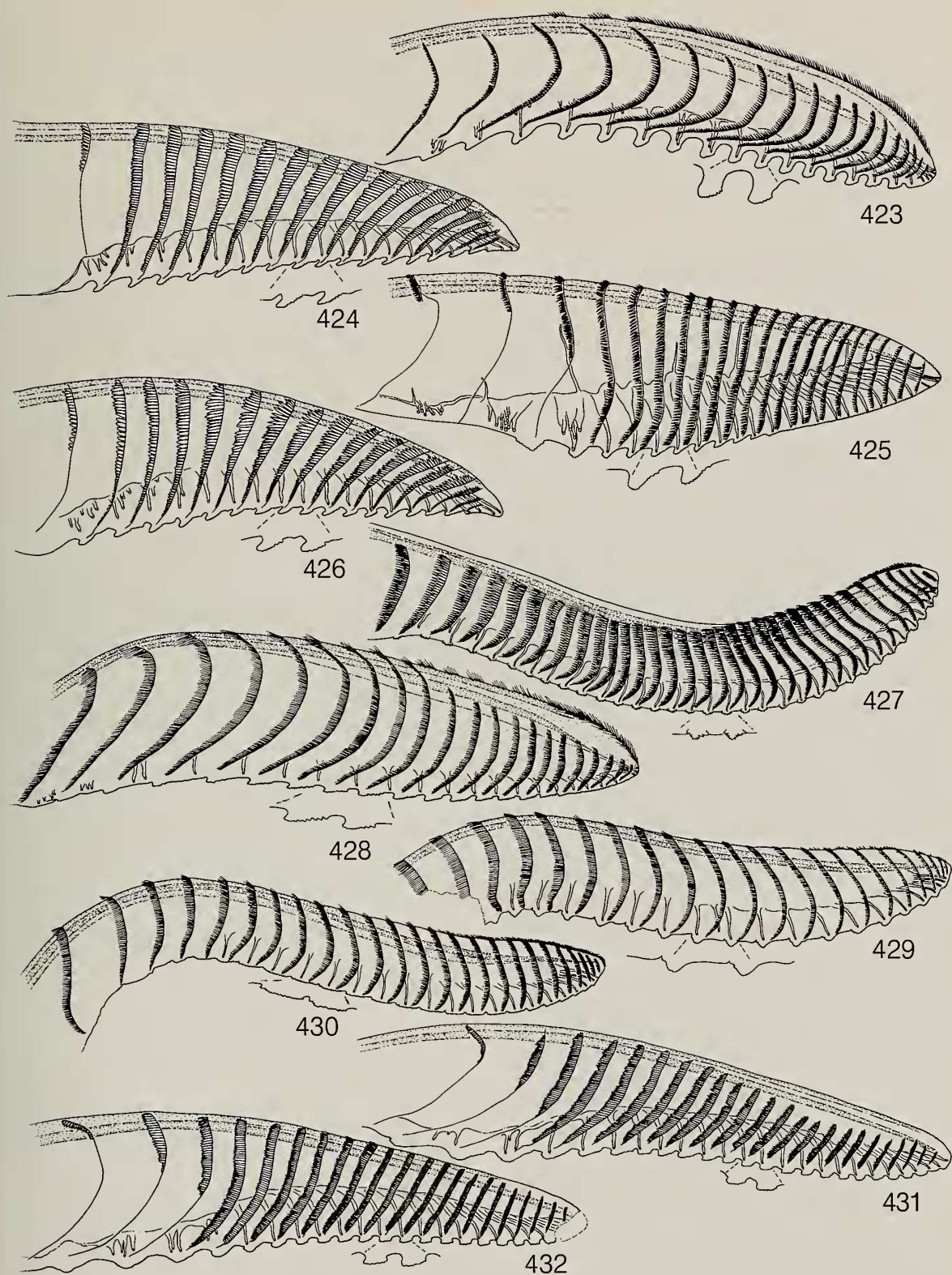
SPECIES

albicerata (Konow), new combination — Peru

**Schizocerus albiceratus* Konow 1903: 108. F. "Peru (Marcapata)" (Eberswalde, F).— Konow 1905a: 29.— Oehlke and Wudowenz 1984: 365 (1 F syntype, without head, at Eberswalde).

The female at Eberswalde labeled "Marcapata, Peru" is here designated lectotype. The head is missing, but

other characters such as the wing venation, sheath, and lancet place this in *Hemidianeura*. It is not included in the key but appears to be close to *nigricornis* (lancet Fig. 419). The coloration is as follows: Thorax red orange with cervical sclerites, mesoprescutum, prosternum, lower half of mesepisternum, mesosternum, and metapleuron black and tegula, mesoscutellum, and metascutellum whitish; abdomen black; legs yellow orange with tarsi and extreme apex of hindtibia black.



Figs. 423-432. *Hemidianeura*, female lancets. 423, *H. plana*; 424, *H. menkei*; 425, *H. dominicaensis*; 426, *H. delta*; 427, *H. evansi*; 428, *H. nantina*; 429, *H. dasua*; 430, *H. quidra*; 431, *H. kuscheli*; 432, *H. ephippiata*.

apicalis Mocsáry — Brazil (Amazonas, Pará); French Guiana

Hemidianeura apicalis Mocsáry 1909: 7. F. "Brasilia: Fonteboa ad Amazonas" (Budapest, F).— Malaise 1957: 10.

I have examined specimens from French Guiana (Kaw) and Brazil (S. Gabriel, Rio Negro, Amazonas; Marajo P. Pedras, Pará).

atripes (Holmgren), **new combination** — Brazil (Rio de Janeiro)

**Hylotoma atripes* Holmgren 1868: 391. F. "Brasilia (Rio Janeiro)" (Stockholm, F).— Dalla Torre 1894: 326.

Labidarge atripes: Konow 1905a: 16.

I have seen several additional specimens from Rio de Janeiro.

coeliaca Konow — Brazil (Rio Grande do Sul)

Hemidianeura coeliaca Konow 1903: 108. F. "Brasilia (R. Grande do Sul)" (Eberswalde, F).— Konow 1905a: 26.— Oehlke and Wudowenz 1984: 374 (holotype).

Oigodianeura coeliaca: Malaise 1957: 8.

The type was not examined, but the species was well characterized by Malaise (1957).

dasua Smith, **new species** — Guatemala

Hemidianeura dasua Smith.

Female.— Length, 6.5 mm. Black; palpi whitish; fore- and midtibiae, extreme apices of fore- and midfemora, foretarsus, midbasitarsus, and basal 3/4 hindtibia white. Wings moderately, uniformly blackish infuscated. Antennal length to head width as 3.6:2.3. Clypeus with small semicircular central emargination; short, blunt, high interantennal carina present; lower interocular distance to eye length as 2.2:2.2; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:0.8:0.7. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.0:1.3. Sheath with scopae, in lateral view rounded (Fig. 406). Lancet as in Fig. 429.

Male.— Unknown.

Holotype.— E, "Duenas, Guate., 4500 ft., VIII-18-1947, F. Johnson Donor Cols. C. and P. Vaurie" (New York).

Remarks.— The black coloration with part of the legs white and lancet are distinctive for this species. It is related to *texana*, *vana*, *quidra*, and *evansi* by the sheath shape, general appearance of the lancet, and

emargination of the clypeus, however, the former three species have red markings on the thorax and *evansi* has black legs.

delta Malaise — Brazil (Santa Catarina); Peru

Hemidianeura delta Malaise 1957: 11. F. "Brasil, Sta Catharina (Nova Teutonia)" (Stockholm, F).

A specimen from Peru (Chanchamayo) is similar to this species, but the mesonotum is entirely red. The holotype has the mesoprescutum and mesoscutellum black.

dominicaensis Smith, **new species** — Dominica

Hemidianeura thoracica: Smith 1969a: 542 (in part).

Hemidianeura dominicaensis Smith.

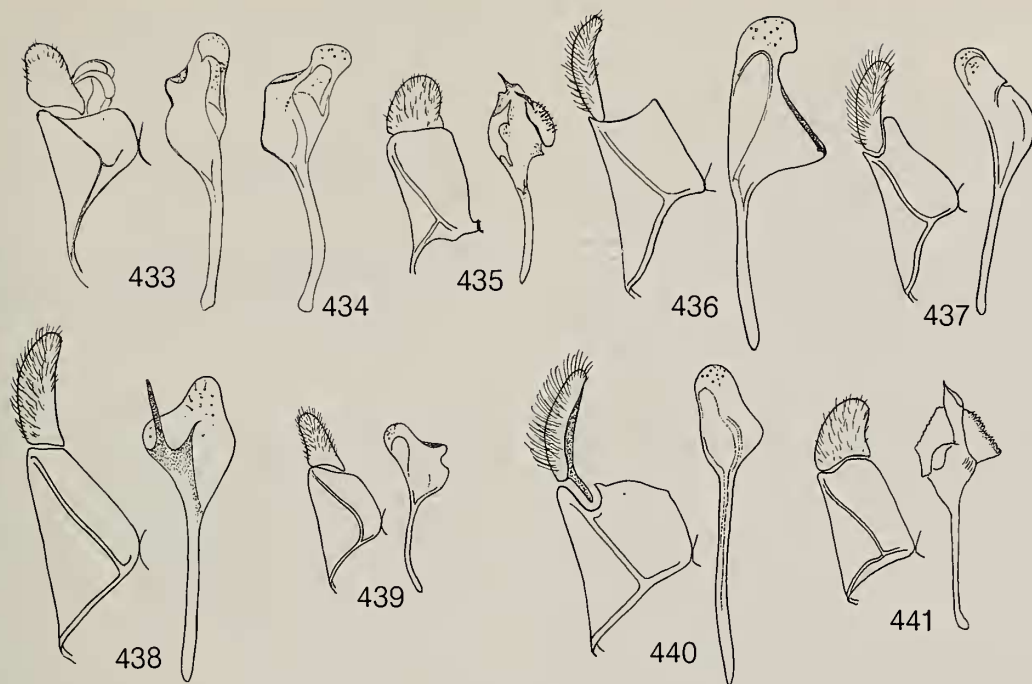
Female.— Length, 4.0 mm. Antenna black, segments 1 and 2 white. Head black with clypeus, supraclypeal area, labrum, and palpi white. Thorax black with cervical sclerites, pronotum, and tegula pale orange; posterior margin of mesoscutellum brownish as is mesepimeron and metepimeron. Legs white with apical 3 or 4 fore- and midtarsal segments, hindtarsus, and extreme apex of hindtibia black. Abdomen black. Wings very lightly infuscated blackish, nearly hyaline; veins and stigma black. Antennal length slightly longer than head width, as 1.8:1.7. Clypeus truncate; interantennal area rounded; lower interocular distance to eye length as 1.6:1.9; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:1.0:0.4. Length of hindbasitarsus to length of remaining tarsal segments combined as 0.6:0.6. Sheath with laterally protruding scopae (Fig. 402). Lancet as in Fig. 425.

Male.— Length, 4.0 mm. Coloration as for that of female. Antennal length to head width as 2.3:1.7. Genitalia as in Fig. 436.

Holotype.— E, "Dominica, Mth. Layou R., III-13-1965, H. E. Evans, Bredin-Archbold Smithsonian Biol. Surv. Dominica" (Washington).

Paratypes.— DOMINICA: same data as for holotype (1 M); Clarke Hall, IV-5-1964, O. S. Flint, Jr. (1 M); Clarke Hall, X-12-18-1964, P. J. Spangler (1 M) (Washington).

Remarks.— In 1969a, I recorded this species as *thoracica*, a species described from Grenada. It is close to *thoracica* except for its mostly black thorax.



Figs. 433-441. *Hemidianeura*, male genitalia. 433, *H. texana*; 434, *H. vana*; 435, *H. natna*; 436, *H. dominicaensis*; 437, *H. leucopoda*; 438, *H. viridana*; 439, *H. quidra*; 440, *H. nigricornis*; 441, *H. nantina*.

ephippiata (Klug) — Brazil (Amapá, Amazonas, Pará); French Guiana; Guyana; Surinam

**Hylotoma ephippia* Klug 1834: 242. M. "Surinam" (Berlin, M.)— Kriechbaumer 1884: 321.

Ptilia ephippia: Norton 1867: 62.

Hemidianeura ephippia: Kirby 1882: 49.— Dalla Torre 1894: 321.— Malaise 1957: 12 (syn.: *bicolor* Kirby, *tenebrica* Konow; Suriname, lower Amazonas, French Guiana).

Ptenus ephippiatus: Konow 1905a: 25.

**Scobina bicolor* Kirby 1882: 41, pl. 3, fig. 6. E. "Amazons. Villa Nova" (London, E.)— Dalla Torre 1894: 317.— Konow 1905a: 15.

**Hemidianeura tenebrica* Konow 1906b: 191. E. "Surinam" (Eberswalde, E.)— Oehlke and Wudowenz 1984: 415 (holotype).

Sericoceros procus* Konow 1906b: 248. M. "Brasilia (Oyapick)" (Eberswalde, M.)— Oehlke and Wudowenz 1984: 406 (holotype). **New synonymy.

The holotype of *bicolor* (BM #1.159) represents a color variant, having the pronotum, tegula, and mesonotum red with black only on the mesoscutellum. I have seen additional specimens from Surinam and Amazonas, Brazil, and one from Blairmont, British Guiana.

evansi Smith, new species — Mexico (Morelos)

Hemidianeura evansi Smith.

Female.— Length, 6.0 mm. Black, only maxillary palpi and foretibia whitish. Wings uniformly subhyaline; veins and stigma black. Antennal length to head width as 3.4:2.4; flagellum laterally flattened. Clypeus with shallow, semicircular, central emargination; short, high, sharp interantennal carina present; lower interocular distance shorter than eye length, as 1.0:1.3; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.9:0.7. Length of hindbasitarsus slightly shorter than length of remaining tarsal segments combined. Sheath similar to that of *texana*, as in Fig. 409. Lancet as in Fig. 427.

Male.— Unknown.

Holotype.— E. "Guadalajara, Crawford" (Washington).

Paratype.— MEXICO: 30-40 km NE Cuernavaca, Mor., 7-8000', VII-31-62, H. E. Evans, collector (1 E.) (Cambridge).

Remarks.— This species is similar to *dasua* in color, but the mid- and hindtibiae are black and the lancet is long with the serrulae flat. It is also similar to *texana*, *quidra*, and *vana* except for the black legs and body. It shares the central emargination of the clypeus with those four species.

filiformis (Norton) — Mexico (Oaxaca, Veracruz)

**Ptilia filiformis* Norton 1867: 62. E, M. "Cordova, t.c. Mexico" (Genève, E).

Hemidianeura filiformis: Kirby 1882: 48.—Smith 1971a: 525 (lectotype).

Dielocera filiformis: Cameron 1883: 43 (syn.: *scapularis* Kirby).

Dielocerus filiformis: Dalla Torre 1894: 322.

Dieloceros filiformis: Konow 1905a: 24.

**Hemidianeura scapularis* Kirby 1882: 49, pl. 3, fig. 15. M. "Mexico. Oajaca" (London, M).—Malaise 1957: 11.

The type of *scapularis* (BM #1.161) is like the female except the mesopleuron is all black and there is a little more black on the hindtibia. I have seen additional specimens from Veracruz.

flavicornis Benson — Brazil (Espírito Santo)

**Hemidianeura apicalis* Enderlein 1919: 118. E. "Südbrasilien. Espírito Santo" (Warszawa, E) (preoccupied by *Hemidianeura apicalis* Mocsáry 1909).

Hemidianeura flavicornis Benson 1930b: 107 (new name for *apicalis* Enderlein).—Malaise 1957: 9.

fucata Konow — Brazil (Santa Catarina)

**Hemidianeura fucata* Konow 1906b: 189-190. E. "Brasilia (St. Katharina)" (Eberswalde, E).—Malaise 1957: 9 (not a *Hemidianeura*).—Oehlke and Wudowenz 1984: 383 ("E Lectotypus (des. D.R. Smith)").

The last closed cubital cell is barely longer on the radius than on the cubitus and was thereby rejected from *Hemidianeura* by Malaise; however, in all other respects, *fucata* belongs to this genus. A male and a female are at Eberswalde. The female is the lectotype. I labeled the specimen but did not publish on it prior to Oehlke and Wudowenz (1984). The male is probably the one Konow questionably associated with *fucata*. It is not part of the type series and is not *fucata* but another unidentified species of *Hemidianeura*.

fuscipennis Mocsáry — Peru

Hemidianeura fuscipennis Mocsáry 1909: 8. M. "Peru: Pebas ad Amazonas" (Budapest, M).—Malaise 1957: 10.

I did not examine the holotype. The species is well characterized by Malaise (1957).

kuscheli Malaise — Bolivia; Peru

**Hemidianeura kuscheli* Malaise 1957: 12. E. "Bolivia (Irupana, Siquiljara 4100-4200 m)" (Stockholm, E).

I examined a single specimen from Peru (Estancia Naranjal, San Ramon, Dep. Junin, 1000 m).

leucopoda (Cameron) — Costa Rica; Ecuador; Guyana; Honduras; Mexico (Chiapas, San Luis Potosi, Tabasco, Veracruz); Panama; Surinam; Venezuela

**Sericocera leucopoda* Cameron 1883: 48, pl. 3, fig. 3. E. "Panama, Bugaba" (London, E).—Dalla Torre 1894: 310.

Sericoceros leucopus (!): Konow 1905a: 28.

Hemidianeura leucopoda: Malaise 1957: 12.

Sericocera laeta* Cameron 1883: 48. E. "Panama, San Felix" (London, E).—Dalla Torre 1894: 310. **New synonymy.

Sericoceros laetus: Konow 1905a: 28.

Hemidianeura laeta: Malaise 1957: 12.

Host: Specimens from Venezuela bear a label "caterpillar on *Inya* sp."

The amount of white on the antenna, presence or absence of black on the mesoprescutum, and amount of black on the hindtibia varies in this species. I failed to find structural differences between specimens of different color combinations or between specimens from northern South America and Mexico and believe both the descriptions above represent the same species. The holotype of *laeta* (BM #1.162) has the apical half of the hindtibia black and the antenna black. The holotype of *leucopoda* (BM #1.160) has only the extreme apex of the hindtibia black and the first two antennal segments partly white. This is a relatively common species, and I have examined specimens from all of the above countries and provinces.

menkei Smith, new species — Venezuela

Hemidianeura menkei Smith.

Female.—Length, 5.5 mm. Antenna black; head black with supraclypeal area, anterior 1/2 of clypeus, labrum, and palpi whitish. Thorax black. Legs black with foretibia whitish. Abdomen black above, orange below; sheath black. Wings lightly, uniformly infuscated black; veins and stigma black. Antennal length about 2X head width, as 4.0:2.1. Clypeus subtruncate; malar space linear; interantennal area rounded; lower interocular distance shorter than eye length, as 1.8:2.3; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.7:0.4.

Length of hindbasitarsus slightly longer than length of following tarsal segments combined. Sheath similar to that of *delta*, Fig. 400. Lancet as in Fig. 424.

Male.—Unknown.

Holotype.—E, "Venezuela: Aragua Rancho Grande, 8-11 June 1976, A. S. Menke and D. Vincent" (Washington).

Remarks.—The mostly black color with the supraclypeal area, clypeus, labrum, and palpi white and the venter of the abdomen orange are unlike other species of *Hemidianeura*.

mexicana (Cresson) — Mexico

**Ptilia mexicana* Cresson 1880: 3. M, "Mexico" (Philadelphia, M).—Cresson 1916: 6 (holotype).

Hemidianeura mexicana: Kirby 1882: 49.—Dalla Torre 1894: 322.—Konow 1905a: 26.—Smith 1971a: 530 (holotype).

I have seen only the holotype of this species.

midea Smith, new species — Mexico (Veracruz)

Hemidianeura midea Smith.

Female.—Length, 7.0 mm. First 2 antennal segments black (3rd missing). Head and mouthparts black. Thorax orange with cervical sclerites, mesosternum, anterior margin of mesoprescutum, mesoscutellum, and metathorax black. Legs white with forecoxa, basal halves of mid- and hindcoxae, most of forefemur, basal 1/3 of outer surface of midfemur, most of outer surface of foretibia, extreme apices of mid- and hindtibiae, and all tarsi black. Abdomen and sheath black. Wings lightly, uniformly black infuscated; veins and stigma black. Clypeus subtruncate; lower interocular distance shorter than eye length, as 2.2:2.5; interantennal area with short, blunt elevation; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.8:0.9:0.5. Length of hindbasitarsus subequal to length of remaining tarsal segments combined. Sheath similar to that of *plumicornis*, Fig. 407. Lancet as in Fig. 413.

Male.—Unknown.

Holotype.—E, "Cordoba, Mex., 16 Mch '08, Fred K. Knab, collector" (Washington).

Remarks.—This species is similar to *leucopoda* but has the basal antennal segments black and a structurally different lancet (Figs. 413, 414).

nantina Smith, new species — Brazil (D.F.)

Hemidianeura nantina Smith.

Female.—Length, 5.8-6.3 mm. Black with apical 1/4 femora, entire foretibia, and basal 1/3 of mid- and hindtibiae whitish. Wings lightly, uniformly blackish infuscated; veins and stigma black. Antennal length to head width as 5.2:4.2. Short, straight carina between antennae; lower interocular distance to eye length as 2.2:2.1; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.8:0.6:0.6; 3rd segment of labial palpus broader than other segments, 4th segment of maxillary palpus slightly broader than other segments. Forewing with 4 cubital cells, last closed cell slightly longer on radius than on cubitus. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.7:2.2. Sheath rounded in lateral view, in dorsal view with short posteriorly projecting scopae (Fig. 408). Lancet as in Fig. 428, annuli curved.

Male.—Length, 5.3-5.9 mm. Coloration as for that of female but sometimes legs mostly black and sterna of abdomen with whitish apical margins. Antennal length to head width as 6.0:4.2. Lower interocular distance to eye length as 2.1:2.1; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.6:0.6. Eighth tergite with a large circular depression or pit on each side, each bearing numerous inwardly projecting stiff hairs (Fig. 396). Genitalia as in Fig. 441, valve with apical spine.

Holotype.—E, "Res. Ecol. IBGE, KM 0 BR 251 - D.F., 14 a 21-III-80, 3A-32-4 J" (Brasilia, IBGE).

Paratypes.—BRAZIL: Same data as for holotype (1 M); same except for dates, 10-17-X-1980 (1 E), 7-14-XI-1980 (1 E), 9-16-XI-1979 (1 E), 23-29-X-1981 (1 E), 11-19, 26/X-5/XI/1979 (1 E), 11-25-IX-1981 (1 M), 3-10-XII-1981 (1 M) (Brasilia, IBGE; Washington).

Remarks.—This species is similar to *natna* in color and the presence of pits on the eighth tergite of the male. The almost entirely black coloration, shape of the male valve (Fig. 435, 441), and female lancet (Fig. 418, 428), however, separate the two species

natna Smith — Brazil (D.F.)

**Hemidianeura natna* Smith 1981: 285-286, fig. 33-35. E, M. "Res. Ecol. IBGE, Km 0 BR 251 - DF" (Brasilia, IBGE, E)

The left mandible has two, small, sharp teeth near its center, unlike the nearly simple left mandible of most *Hemidianeura*. The male has circular depressions

on each side of the eighth tergite as described in the introduction to the genus..

nigricornis Kirby — Brazil (Pará, Amazonas);
French Guiana; Peru; Surinam.

**Hemidianeura nigricornis* Kirby 1882: 49, pl. 3, fig. 16. F.
"Amazonas. Santarem" (London, F).— Dalla Torre 1894:
322.— Konow 1905a: 26.— Malaise 1957: 10.

**Hemidianeura illisa* Konow 1906b: 190-191. M. "Brasilia
(Obidos)" (Eberswalde, M).— Oehlke and Wudowenz
1984: 388 (2 M syntypes at Eberswalde). **New synonymy.**
Hemidianeura nigricornis illisa: Malaise 1957: 10.

Both syntypes of *illisa* at Eberswalde are labeled
"Obidos 1904." The one with Konow's determination
label is hereby selected lectotype and the other is a
paralectotype. The holotype of *nigricornis* is BM
#1.138. The only difference between *illisa* and
nigricornis is the presence or absence of a black mark
on the mesoprescutum. Malaise chose to separate these
forms as subspecies. I have seen specimens from
Surinam (Zanderij), Peru (Loreto, Pucallpa), and French
Guiana (Nouveau Chantier)

plana Smith, new species — Brazil (Santa Catarina)

Hemidianeura plana Smith.

Female.— Length, 7.0 mm. Antenna, head, and
thorax black. Legs black with apical halves of fore- and
midfemora and most of hindfemur light orange, basal
halves of tibiae whitish. Abdomen orange, apical 1-2
segments and sheath black. Wings darkly, uniformly
infuscated black; veins and stigma black. Antennal
length to head width as 4.0:2.5. Clypeus subtruncate;
malar space linear; lower interocular distance shorter
than eye length, as 1.2:1.5; interantennal area with
short, blunt elevation; distances between eye and
hindocellus, hindocelli, and hindocelli and posterior
margin of head as 1.0:1.0:0.7. Length of hindbasitarsus
subequal to length of following tarsal segments com-
bined. Sheath rounded in lateral view, with slender
scopae, similar to that of *dasua*, Fig. 406. Lancet as in
Fig. 423.

Male.— Unknown.

Holotype.— F, "Mafra, S. Cath., Brazil, Dec. 1940,
A. Maller, col., Frank Johnson, donor" (New York).

Paratype.— BRAZIL: Nova Teutonia, 27° 11' B,
52° 23' L, 300-500 m, XI-1967, Fritz Plaumann (1 F)
(New Haven).

Remarks.— The black wings, black head and tho-
rax, mostly orange abdomen, and unusual lancet (Fig.
423) separate this species from other *Hemidianeura*. The

color is similar to *plumicornis* except for the uniformly
dark wings, and the lancet (Figs. 416, 423) and sheath
(Figs. 406, 407) are decidedly different.

plaumanni (Malaise), new combination — Brazil
(Santa Catarina)

Oigodianeura plaumanni Malaise 1957: 8. F. "Brazil, Sta
Catharina (Nova Teutonia)" (Stockholm, F).

I have seen additional specimens from the type
locality.

plumicornis (Klug) — Brazil (Rio de Janeiro, São
Paulo, Santa Catarina)

**Hylotomaplumicornis* Klug 1834: 241. F. "Brasilien" (Berlin,
F).— Kriechbaumer 1884: 290.

Ptilia plumicornis: Norton 1867: 62.

Hemidianeura plumicornis: Kirby 1882: 49.— Dalla Torre
1894: 322.— Konow 1905a: 26.— Malaise 1957: 9.

**Hemidianeura hyalinata* Mocsáry 1909: 7. F. "Brasilia:
Blumenau" (Budapest, F). **New synonymy.**

There are 2 females of *plumicornis* at Berlin, both
labeled "13683" and "Brasil v. Olfers." The specimen
with the large green determination label is hereby
selected lectotype, the other with "*plumicornis*" on a
white piece of paper is a paralectotype. I have exam-
ined specimens from the following Brazilian states:
Rio de Janeiro, São Paulo (Barueri; Boracсия), and
Santa Catarina (Hansa Humbolt).

propleuralis (Malaise), new combination — Brazil
(Paraná, Rio de Janeiro, Santa Catarina, São
Paulo)

Oigodianeura propleuralis Malaise 1957: 8. F. "Brazil, Sao
Paulo (Serra da Cantareicia)" (Stockholm, F).

I have seen specimens from São Paulo, Paraná
(Rolandia), Rio de Janeiro, and Santa Catarina (Pinhal).

quidra Smith, new species — Mexico (Guerrero,
Veracruz)

Hemidianeura quidra Smith.

Female.— Length, 7.0 mm. Antenna and head black;
palpi whitish. Thorax black with tegula and mesonotum,
except black mark on anterior 1/2 of prescutum, red-
dish. Abdomen black. Legs black with foretibia and
foretarsus except for apical 3 or 4 segments and basal
2/3 of mid- and hindtibiae white. Wings darkly, uni-

formly black infuscated; veins and stigma black. Antennal length to head width as 3.8:2.3. Clypeus with slight, central, semicircular emargination; lower interocular distance to eye length as 2.3:2.3; interantennal area with short, blunt elevation; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:0.6:0.9. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.0:1.3. Sheath with long slender scopae directed posteriorly, Fig. 398. Lancet as in Fig. 430.

Male.—Length, 6.8 mm. Similar in color to female except for reddish pronotum and mesonotum. Antennal length to head width as 4.3:2.3. Genitalia as in Fig. 439.

Holotype.—E, “12 miles south Chilpancingo, Gro., Mexico, VII-12-66, P. M. and P. K. Wagner” (College Station).

Paratypes.—MEXICO: Cordoba, Crawford (1 E); 9 mi S. Tierra Colorado, Gro., VII-21 1963, F. D. Parker, L. A. Stange (4 E, 1 M) (Davis, Washington).

Remarks.—This species most closely resembles *texana* but is distinguished by the black pronotum and shorter lancet with fewer serrulae (Figs. 411, 430). The white tibiae, black pronotum, and short lancet will separate *quidra* from *vana*.

ruminata (Konow) — Brazil (Pará)

**Sericoceros ruminatus* Konow 1906b: 248-249. M, “Brasilia (Obidos)” (Eberswalde, M).—Oehlke and Wudowenz 1984: 409 (holotype).

Hemidianeura ruminata: Smith 1981: 286.

This species is close to *ephippiata* but the last closed cubital cell is quadrate (instead of shorter than long) and the pronotum and basal abdominal segments are paler to dark orange. I choose to leave *ruminata* separate for now.

texana (Norton), **new combination** — Mexico (Coahuila, San Luis Potosi, Yucatán ?); U.S.A. (Texas)

**Ptilia texana* Norton 1869: 367. E, M, “Texas” (Philadelphia, E).—Cresson 1928: 9 (holotype).

Ptenos texanus: Norton 1872: 77.—Dalla Torre 1894: 324.—Forsius 1925a: 6.

Ptenus texanus: Kirby 1882: 53.—Konow 1905a: 26 (syn.: *niger* Norton).—Ross 1951: 16.—Smith 1970: 94-95, fig. 4, 14, 15, 18, 31, 41.—Greenbaum 1975: 166 (distribution).—Smith 1979: 24.

**Ptenos niger* Norton 1872: 77. M, “Texas” (Philadelphia, M).—Cresson 1880: 36.—Dalla Torre 1894: 324.—Forsius 1925: 6.—Cresson 1928: 7 (holotype).

Ptenus niger: Kirby 1882: 53.—Ross 1951: 16.

A specimen from Yucatán (Vicente Solis) is similar but has the mesoprescutum, upper portion of the mesepisternum, and metanotum red rather than black.

thoracica Ashmead — Grenada

**Hemidianeura thoracica* Ashmead 1900b: 298, 366. E, “Grenada-Balthazar, Grand Etang” (London, E).—Malaise 1937: 10.—Smith 1969a: 542 (in part).

Of the two specimens described, one is in London the other in Washington. The specimen in London is hereby designated lectotype, the Washington specimen a paralectotype. The lectotype is labeled “Grand Etang (windward side) 1900 ft., Grenada, W.I., H.H. Smith” and is BM #1.139.

vana (Smith), **new combination** — Mexico (Chihuahua, Coahuila, San Luis Potosi Veracruz); U.S.A. (Arizona, New Mexico)

**Ptenus vanus* Smith 1970: 96, 98, fig. 32. E, M, “S.F. Deer Cr. Can., Peloncillo Mts., N.M., 5000” (Washington, E).—Greenbaum 1975: 166 (Veracruz).—Smith 1979: 24.

I have seen specimens from 10 mi. N. Cd. Jiminez, Chihuahua, and El Naranjo, El Salto, S.L.P.

viridana (Malaise), **new combination** — Argentina (Tucumán); Brazil (D.F.)

**Argenia viridana* Malaise 1949: 60-61. E, M, “Argentina (Tucumán, Villa Padre Monti)” (Tucumán, E).

Paratypes of this species are in Stockholm. The left mandible has two small teeth near the center and the right mandible has a small subapical tooth near the apical tooth unlike most *Hemidianeura* which have the left mandible nearly simple and right mandible with a basal lobe. I have seen additional specimens from the province of Tucumán, Argentina, and several specimens from Res. Ecol., IBGE, Brasilia, D.F., Brazil, with the following dates: 18-25-III-82, 17-24-III-83, 29-III-5-IV-84, 31-III-7-IV-83. The specimens are identical to those from Tucumán.

Genus MANAOS Rohwer

Manaos Rohwer 1912c: 62. Type species: *Manaos nigrinotatus* Rohwer. Orig. desig.

Antenna (Fig. 445) with 1st segment enlarged, oval, and broader than 2nd and 3rd segments, longer than broad; 2nd segment short, broader than long; 3rd segment of female antenna long, oval or circular in cross-section and tapering to apex; antennal length usually 2X or more head width. Eyes large, converging below, lower interocular distance less than eye length (Fig. 443), close to posterior margin of head in side view; head from above sharply narrowing behind eyes (Fig. 444); interantennal carina high, sharp, not Y-shaped above and ending at top of supraclypeal area below (Fig. 443); supraclypeal area convex; ocelli large, closer together than the diameter of one; clypeus truncate; malar space linear; length of maxillary palpus longer than eye length, palpi without enlarged segments or only 3rd segment of labial palpus slightly enlarged (Fig. 447); left mandible simple, right mandible with basal tooth (Fig. 446). Forewing (Fig. 442) with costa swollen, broader than intercostal area; radial cell closed, with none or a very short stub as accessory vein; 3 or 4 cubital cells, the last closed cell quadrate,

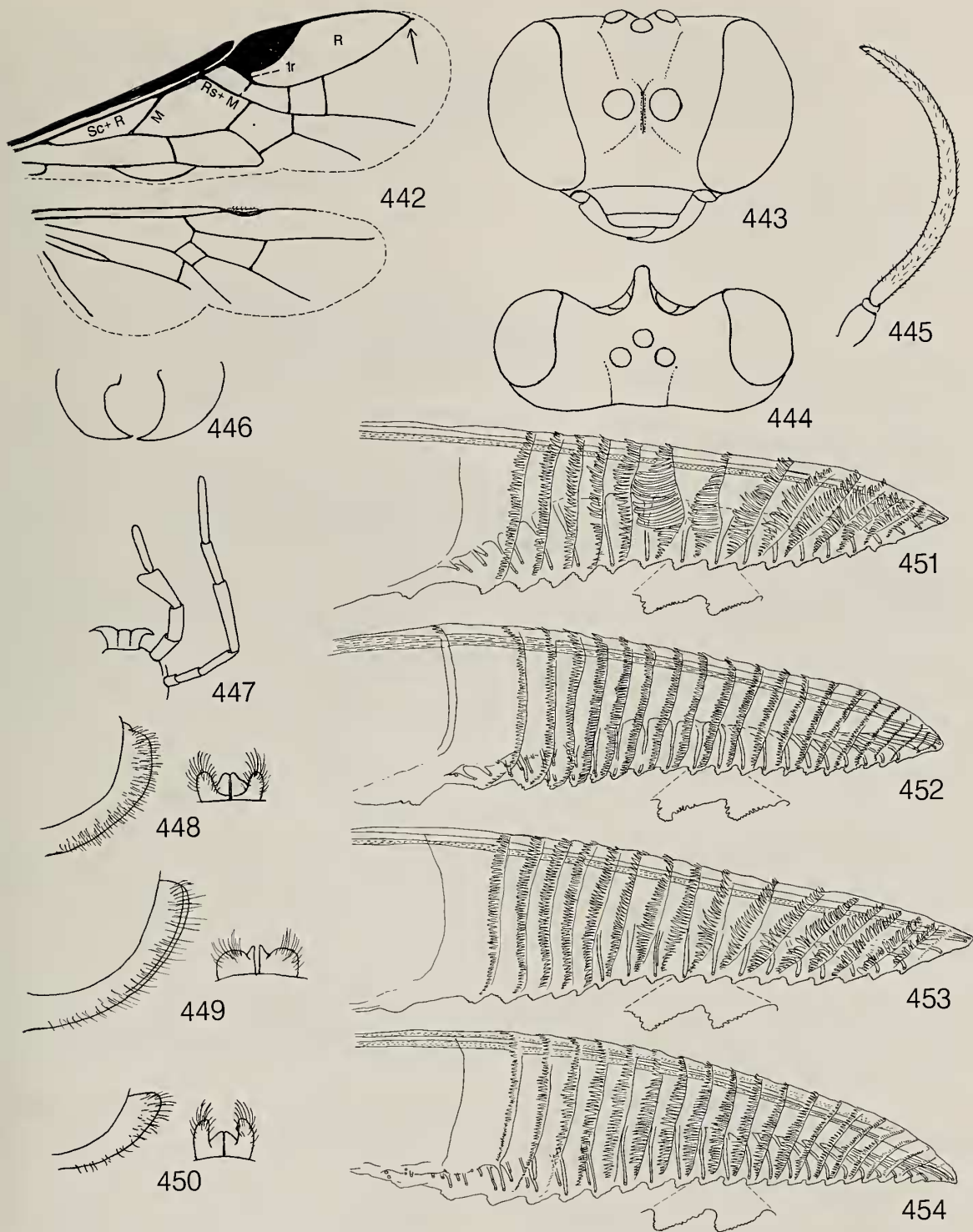
as long as or slightly longer on cubitus as on radius; distance between M and Rs+M on Sc+R equal to or greater than length of vein M; basal anal cell present. Hindwing (Fig. 442) with anal cell present, equal to or longer than its petiole. Length of hindbasitarsus usually longer than length of remaining tarsal segments combined; tarsal claws simple.

All species are very similar in appearance, usually yellow to orange with black marks on the thorax, with uniformly black or fasciate wings, and about 6 to 7 mm in length. The sheath is very similar in all species, as are also the female lancet and male genitalia. The genus is close to *Hemidianeura*, and it was treated as a subgenus of *Hemidianeura* by Malaise (1937a), but *Manaos* lacks a long accessory vein at the apex of the radial cell of the forewing, has the apex of the radial cell closer to the apex of the wing, has a short, sharp, high, interantennal carina, has large ocelli with the distance between them less than the diameter of one, and has a much enlarged first antennal segment.

Species determination is difficult, and the female lancet should be examined for identification. Additional material is needed to evaluate the status of some species. The genus is found from Central America to Argentina. Hosts are not known.

KEY TO SPECIES

1. Head orange 2
 - Head black above antenna; clypeus and supraclypeal area whitish 4
2. Forewing yellowish with apex black in female, base and apex black in male; stigma usually yellow; annular spines of lancet not noticeably enlarged at center (Fig. 452) (male genitalia as in Fig. 460) *toula*, new species
 - Wings uniformly blackish infuscated; veins and stigma black; central annuli of lancet with enormously enlarged spines (Figs. 451, 455) 3
3. Apex of abdomen usually blackish, at least apical terga; lancet as in Fig. 451; male genitalia as in Fig. 458 *filicornis* (Klug)
 - Abdomen orange; lancet as in Fig. 455; male genitalia as in Fig. 464 *maculipennis* (Forsius)
4. Forewing fasciate, yellowish at center, black at base and apex and sometimes at anterior margin 5
 - Forewing uniformly blackish infuscated 7
5. Abdomen orange (thorax orange, only mesonotal lateral lobes black) *bigrammatus* (Konow)
 - Abdomen yellow to orange, apical 2-4 segments black. 6
6. Annular spines of lancet short, those on apical half of lancet shorter than or no longer than those on basal half of lancet (Fig. 454); mesonotum black (a specimen from Mexico has lateral lobes black, prescutum and scutellum orange yellow); large, 7.0 mm long; (male genitalia as in Fig. 462) *kimseyae* Smith
 - Annular spines on apical half of lancet long, longer than those on basal half of lancet (Fig. 453); mesonotum with scutellum and/or prescutum mostly orange yellow; small, about 5.0 mm long *declivis* (Konow)
7. Mesopleuron and mesosternum black; femora mostly black; (male genitalia as in Fig. 461) *wygodzinskyi* Malaise
 - Mesopleuron orange, mesosternum orange or with black marks; femora orange 8



Figs. 442-454. *Manaos*. 442, Forewing and hindwing of *M. filicornis*. 443, Front view of head of *M. filicornis*. 444, Dorsal view of head of *M. filicornis*. 445, Female antenna of *M. filicornis*. 446, Mandibles of *M. filicornis*. 447, Palpi of *M. filicornis*. Female sheaths of 448, *M. toulus*; 449, *M. kimseyi*; 450, *M. filicornis*. Female lancets of 451, *M. filicornis*; 452, *M. toulus*; 453, *M. declivis*; 454, *M. kimseyi*.

8. Mesonotum black; annular spines of lancet shorter than distance between segments (Fig. 456) (male genitalia as in Fig. 463; mesopleuron and mesosternum orange) *mulsus* (Konow)
- Mesonotum partly orange; annular spines near center of lancet usually long and overlapping (Fig. 457) 9
9. Mesosternum black or with black marks on each side; mesonotum usually with black on prescutum and lateral lobes (lancet as in Fig. 457; male genitalia as in Fig. 459) *mammeatus* (Konow)
- Mesosternum orange; mesonotum orange or only lateral lobes black 10
10. Mesonotum orange *ricatus* (Konow)
- Mesonotum with lateral lobes black (male genitalia as in Fig. 465; species similar and identical in coloration; the type of *affinis* is smaller and has the sheath orange, that of *romani* is larger and has the sheath blackish; presently I cannot determine if these are valid species) *affinis* (Forsius), *romani* (Forsius)

SPECIES

***affinis* (Forsius), new combination — Brazil (Amazonas)**

**Sericoceros affinis* Forsius 1925a: 12-13. F, M. "Rio Purus" (Stockholm, F) (allotype from Ria Autáz).

The specimens at Stockholm were labeled the reverse, the male from Rio Autáz as type, the female from Rio Purus as cotype. Specimens similar to *affinis* and *romani* have been collected in Peru (Chanchamayo) and Brazil (Pará, Amapá, Mato Grosso).

***bigrammatus* (Konow), new combination — Brazil (Amazonas)**

**Sericoceros bigrammatus* Konow 1906b: 246. F. "Brasilia (Amazonas)" (Eberswalde, F).— Oehlke and Wudowenz 1984: 369 (holotype).

The holotype lacks a head, but other characters place it in *Manaos*. It is labeled "Massauari, Amazonas."

***declivis* (Konow), new combination — Brazil (Amapá, Pará); Honduras; Surinam**

**Sericoceros declivis* Konow 1906b: 246-247. F. "Brasilia (Oyapock)" (Eberswalde, F).— Oehlke and Wudowenz 1984: 376 ("F Lectotypus (des. D.R. Smith 1978) und 1 F, ohne Kopf, Paralectotypus").

Two females at Eberswalde bear the same data: "Oyapock, 9.6.1904, Duce." I labeled the specimens in 1978 but did not publish a lectotype designation. The specimen with Konow's determination label is the lectotype, the other specimen lacking the head is the paralectotype. The Honduran specimen is similar in color and structure; however, the pale areas appear more yellow than orange. I have seen other specimens from Surinam (Coppename River, Voltz Plateau) and Brazil (Pará, km 90 F Jaboti; Santarem).

***filicornis* (Klug), new combination — Argentina; Brazil (Minas Gerais, Rio de Janeiro, Santa Catarina)**

**Hylotoma* (*Schizocera*) *filicornis* Klug 1834: 244. F, M. "Brasilien" (Berlin, F).— Kriechbaumer 1884: 292.

Schizoceros filicornis: Norton 1867: 56.— Kirby 1882: 28.

Schizocera filicornis: Dalla Torre 1894: 312.

Sericoceros filicornis: Konow 1905a: 29.— Konow 1906b: 251.

Two females of *filicornis* are at Berlin, both labeled "13702" and "Brazil, v. Olvers." The specimen with the large, green determination label is hereby selected the lectotype and the other specimen a paralectotype. I have seen specimens from each of the above Brazilian states. A specimen from Argentina is labeled "Bemberg, Argentina."

***kimseyae* Smith — Costa Rica; Mexico (Veracruz); Panama**

**Manaos kimseyi* Smith in Kimsey and Smith 1985: 195-197. fig. 6-10, 32-39. F, M. larva. "Canal Zone, Pan., Barro Colorado I." (Davis, F) (host a; biological note).

Hosts: a) *Inga phagifolium* (Leguminosae)

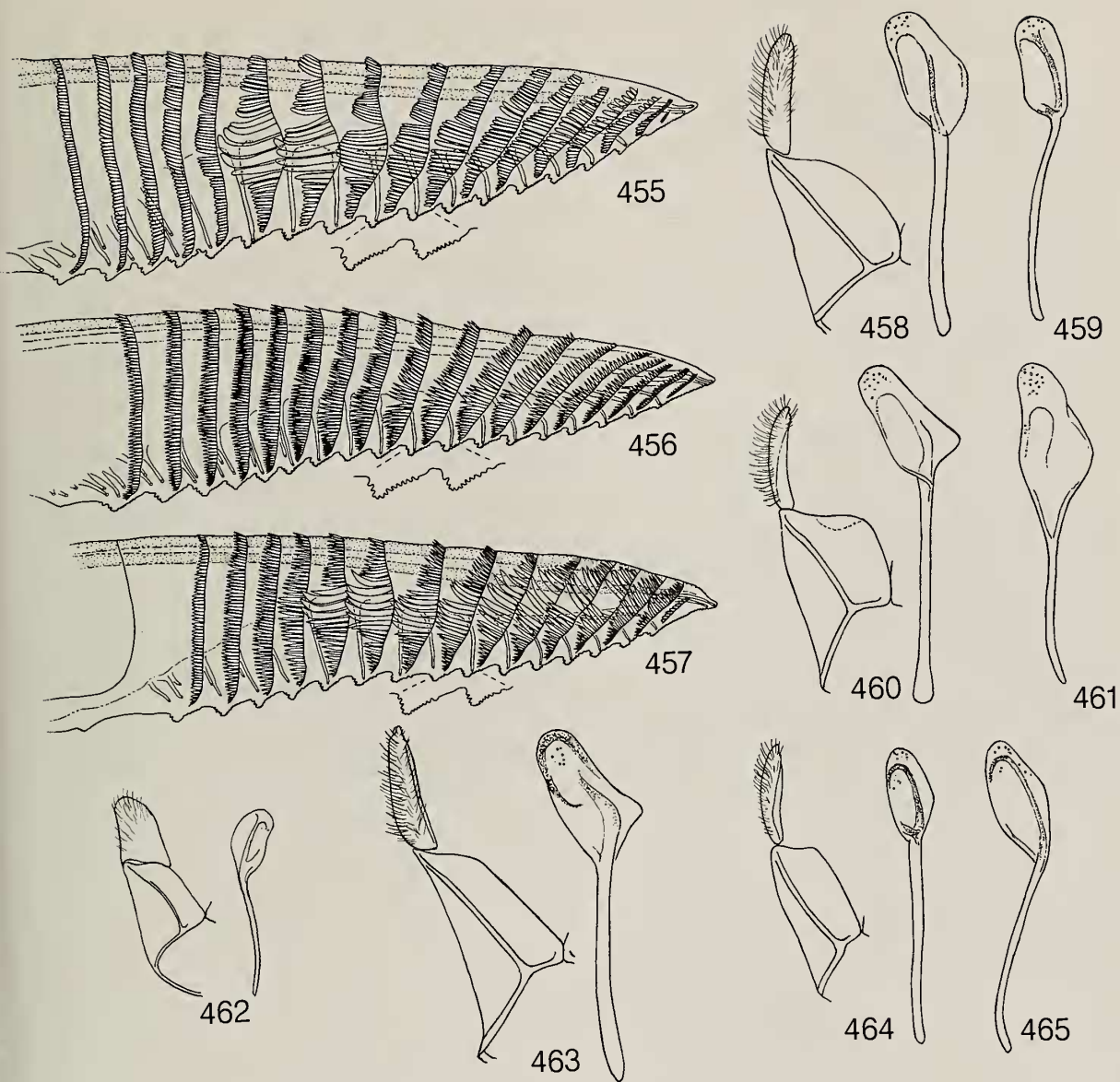
The specimen from Costa Rica is from Puntarenas Prov., Golfito; the specimen from Mexico from Puente Nacional, Veracruz.

***maculipennis* (Forsius), new combination — Brazil (Amazonas); Guyana**

**Sericoceros maculipennis* Forsius 1925a: 8-9. F. "Rio Autaz, Cururuzinho" (Stockholm, F).

**Sericoceros pusillus* Forsius 1925a: 11-12. F. "Rio Autaz, Cururuzinho" (Stockholm, F). New synonymy.

Both of Forsius' species are identical except *pusillus* is slightly smaller in size. The Guyana specimens examined are from "Demerara R."



Figs. 455-465. *Manaos*. Female lancets of 455, *M. maculipennis*; 456, *M. mulsus*; 457, *M. mammeatus*. Male genitalia of 458, *M. filicornis*; 459, *M. mammeatus*; 460, *M. toulia*; 461, *M. wygodzinskyi*; 462, *M. kimseyi*; 463, *M. mulsus*; 464, *M. maculipennis*; 465, *M. affinis*.

mammeatus (Konow), new combination — Bolivia; Ecuador; Peru

**Sericoceros mammeatus* Konow 1906b: 247-248. M. "Peru (Marcapata), Bolivia (Mapiri)" (Eberswalde, M).—Oehlke and Wudowenz 1984: 394 ("M Lectotypus (des. D.R. Smith 1977), Bolivien, Mapiri; 1 M, Paralectotypus, Peru, Marcapata").

Although I labeled the specimens in the Eberswald collection, I did not publish on the lectotype designation. I have seen specimens from Ecuador (Coca; Napo, Limoncocha; and Peru (Quincemil, Cuzco Dep.; Rio Santiago).

mulsus (Konow), new combination — Brazil (Amazonas, Pará); Peru; Surinam

**Sericoceros mulsus* Konow 1906b: 247. F, M. "Brasilia (Para, Teffe, Prainha, R. Japura)" (Eberswalde, M).—Oehlke and Wudowenz 1984: 396 ("M Lectotypus (des. D.R. Smith 1977)" and 2 M, 2 F paralectotypes).

**Manaos nigrinotatus* Rohwer 1912c: 62-63. M. "Manaos, Brazil" (Washington, M). New synonymy.

Eight specimens of *mulsus* were sent to me: 2 M, 1 F from Pará, 25-6-1903; 1 M Barcellos 1-VII-1905; 1 F Prainha, 12-5-1903; 1 M R. Japura, 19-9-1904; 1 M Teffe, 3-10-1904; 1 M Teffe, 1-10-1904. The Barcellos specimen cannot be a type since the locality was not mentioned by Konow. The Japura specimen is probably another species. The lectotype designated by Oehlke and Wudowenz is one of the males from Pará, the other specimens are paralectotypes. I labeled these in 1977 but did not publish on the designations. I have seen specimens from Surinam (Blakawatra; Zanderij; Onverolacht) and Peru (Avispas).

ricatus (Konow), new combination — Brazil (Pará)

**Sericoceros ricatus* Konow 1906b: 245-246. F. "Brasilia (Itaituba)" (Eberswalde, F).—Oehlke and Wudowenz 1984: 408 (holotype).

romani (Forsius), new combination — Brazil (Amazonas)

**Sericoceros romani* Forsius 1925a: 10-11. F. "Amazonas: Manaos, Rio Purus, Hyutánahã, Rio Autáz, Cururuzinho" (Stockholm, F).

**Sericoceros apicalis* Forsius 1925a: 21-22. F. "Amazonas, Fontebôa" (Stockholm, F). New synonymy.

I examined 2 females of *romani* from Stockholm.

The one labeled "Rio Purus" is hereby designated lectotype, the other labeled "Cururuzinho" is a paralectotype. The lectotype of *romani* and the holotype of *apicalis* are identical.

toula Smith, new species — Ecuador; Peru

Manaos toula Smith.

Female.—Length, 7.0 mm. Orange with 2nd and 3rd antennal segments, hindtarsus, and apical 1/3 hindtibia black. Wings orange, apex beyond stigma blackish; veins in pale area and stigma orange, veins at apex in dark area black. Antennal length to head width as 7.0:2.5. Lower interocular distance to eye length as 1.7:2.6; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.8:0.4:0.5; ocelli large, distance between hindocelli equal to diameter of one. Length of hindbasitarsus longer than length of remaining tarsal segments combined. Sheath with blunt scopae, as in Fig. 448. Lancet as in Fig. 452.

Male.—Length, 5.5-6.5 mm. Coloration as for that of female, but wings also blackish infuscated at base. Antennal length to head width as 6.2:2.2. Genitalia as in Fig. 460.

Holotype.—F, "Peru: Monson Valley, Tingo Maria, IX-23-1954, E. I. Schlinger and E. S. Ross, collectors" (San Francisco).

Paratypes.—ECUADOR: Pastaza, Cusuimi, Rio Cusuimi, 150 km SE of Puyo, V-15-31-1971, leg. B. Malkin; elev. 320 m. (1 F). PERU: Same data as for holotype (4 M), same except X-26-1954 (1 M) (San Francisco, Chicago).

Remarks.—The nearly entirely orange coloration and the yellowish wings with the black apices will separate *toula* from other species of *Manaos*. The specimen from Ecuador has the stigma and costa more blackish.

wygodzinskyi Malaise — Brazil (Rio de Janeiro)

Manaos wygodzinskyi Malaise 1949: 12-13. F, M. "Brazil (Rio de Janeiro, Grajahu)" (Stockholm, F).

Genus **NEOPTILIA** Ashmead

Neoptilia Ashmead 1898: 213. Type species: *Neoptilia mexicana* Ashmead. Orig. desig.

Pseudocyphona Ashmead 1898: 211. Type species: *Pseudocyphona mexicana* Ashmead. Orig. desig.

Rhagonyx Konow 1903: 108-109. Type species: *Rhagonyx lituratus* Konow. Monotypic.

Antenna (Fig. 470) with 1st segment longer than broad, 2nd segment slightly broader than long, 3rd segment of female antenna stout, laterally flattened; antennal length subequal to or slightly more than head width. Malar space linear to about half diameter of front ocellus; clypeus very shallowly semicircularly emarginated to subtruncate; palpi (Fig. 472) without enlarged segments, maxillary palpus shorter to a little longer than eye length; left mandible simple or with 1 or 2 small crenulations near center, right mandible with basal tooth (Fig. 471); eyes small, slightly converging below, lower interocular distance subequal to or greater than eye length (Fig. 468); from above, head broadened behind eyes; interantennal area not carinate, low and convex. Forewing (Figs. 466, 467) with radial cell closed (faintly open in several species), with accessory vein; costa swollen, subequal to or greater than width of intercostal area; 3 or 4 cubital cells, last closed cell

longer on radius than on cubitus; distance between M and Rs+M on Sc+R short, less than half length of vein M; small basal anal cell present. Hindwing with anal cell present, longer than its petiole. Length of hindbasitarsus shorter to slightly longer than length of remaining tarsal segments combined; hindtibial spines inserted in collar basal to apex of hindtibia, the spines not or little exceeding the apex of the collar (similar to Fig. 328); tarsal claws with long inner tooth (Fig. 469). Male genitalia with harpe fused to gonostipes (Fig. 489).

These moderate to large species, about 10-12 mm in length, are distinguished by the bifid tarsal claws, small eyes with the lower interocular distance equal to or greater than the eye length, head from above broadened behind eyes, and the fused harpe and gonostipes of the male genitalia. The latter is unique in the Argidae. In addition to the fused harpe and gonostipes, the gonostipes are developed posteriorly on their inner margin into preputial lobes (parapenis) in several species (Figs. 492-494). The parapenis occurs in most other Tenthredinoidea except Pergidae, and are unknown in most other Argidae.

Smith (1971b) revised those species found in the southwestern United States. The genus occurs from southwestern United States to Venezuela and Ecuador. Known hosts are plants of the Malvaceae.

KEY TO SPECIES

1. Abdomen orange 2
- Abdomen black, at most basal terga or center of basal terga pale 5
2. Forewing hyaline at base, blackish on apical 1/2 to 2/3 3
- Forewing uniformly blackish infuscated 4
3. Scopae of sheath slender, leaflike (Fig. 474); serrulae of lancet narrower, farther apart (Fig. 482); abdomen orange usually with black spots laterally on terga 2-4 (male genitalia as in Fig. 492) *biramosa* (Klug)
- Scopae of sheath narrow, more peglike (Fig. 479); serrulae of lancet large and close together (Fig. 485); abdomen orange with black mark only on each side of tergum 2 *opulesa*, new species
4. Mesosternum black; legs black; lancet as in Fig. 480; sheath as in Fig. 475; male genitalia as in Fig. 489 *malvacearum* (Cockerell)
- Thorax orange; legs with femora orange; lancet as in Fig. 483; sheath similar to that of *biramosa*, Fig. 474; male genitalia as in Fig. 494 (mostly orange species rather than red and black in *malvacearum*) *liturata* (Konow)
5. Legs whitish, apices of tibiae and tarsi black (thorax with mesepisternum, mesosternum, and mesoprepectum black; pronotum whitish; mesonotal lateral lobes blackish to reddish, mesoscutellum white; lancet as in Fig. 486; sheath as in Fig. 477; male genitalia as in Fig. 493) *imitatrix* (Cameron)
- Legs black, coxae and trochanters may be whitish 6
6. Pronotum black 7
- Pronotum red or yellowish 8
7. Serrulae of lancet flat (Fig. 484); scopae of sheath thick, but leaflike and protruding (Fig. 478); tegula black; small black spot on anterior 1/2 of each mesonotal lateral lobe *nyrsa*, new species
- Serrulae of lancet deep (Fig. 487); sheath broad, without lateral protruding scopae (similar to *tora*, Fig. 473); tegula and mesonotum red *stata*, new species

8. Upper 1/4 to 1/2 of mesepisternum red (pronotum and mesonotum red; lancet as in Fig. 481; sheath as in Fig. 476; male genitalia as in Fig. 490; male with mesepisternum, mesoprescutum, and mesoscutellum black, rest of thorax red) *xicana* Smith
- Mesepisternum black 9
9. Pronotum, tegula, mesonotum, and metanotum red; lancet similar to *xicana*, Fig. 481; sheath as in Fig. 473 (male genitalia as in Fig. 491; male with mesepisternum, and parapteron black, rest of thorax including mesonotum red) *tora* Smith
- Pronotum, parapteron, and upper 1/2 of mesepimeron yellow to red; mesonotum with prescutum black, lateral lobes red with lateral deflexed sides black, scutellum yellow to reddish; lancet as in Fig. 488; sheath similar to *opulesa*, Fig. 479; *palla*, new species

SPECIES

biramosa (Klug) — Costa Rica; Guatemala; Honduras; Mexico (Aguascalientes, Chiapas, D.F., Guerrero, Jalisco, Michoacán, Morelos, Nayarit, Oaxaca, San Luis Potosi, Sinaloa, Veracruz, Yucatán); Panama; El Salvador

**Hylotoma biramosa* Klug 1834: 242-243. M. "Mexiko" (Berlin, M.)— Kriechbaumer 1884: 291.

Ptilia biramosa: Norton 1867: 61.

Ptenus biramosa: Kirby 1882: 53.

Dielocera biramosa: Cameron 1883: 42, pl. 1, fig. 10.

Dielocerus biramosus: Dalla Torre 1894: 322.

Dieloceros biramosus: Konow 1905a: 24.

Neoptilia biramosa: Smith 1973: 30 (holotype; syn.: *varicolor* Norton, M.) (Ashmead).

**Pachylota varicolor* Norton 1872: 79. F. "Mexico" (Philadelphia, F.)— Cresson 1880: 37.— Cameron 1883: 51.— Dalla Torre 1894: 324 (*varicolor*!).— Konow 1905a: 23.— Cresson 1928: 5 (holotype).

Neoptilia varicolor: Smith 1971a: 526 (holotype).— Smith 1971b: 538, 541-542, fig. 1, 10, 14, 15, 51, 79, 82 (E., M.; description, distribution).

**Neoptilia mexicana* Ashmead 1898: 213. F. M. No locality. (Washington, F.)— Rohwer 1911a: 107 (F., M. described; holotype from "San Rafael, Jicoltepec, Mexico").

Host: Specimens from Catemaco, Veracruz, were "reared on leaves of *Sida densiflora*" (Malvaceae).

This is one of the more common species in Mexico and Central America. I have seen many specimens from the above localities. Vein 3r-m of the forewing has an apically projecting stub at its center in most specimens examined (Fig. 466). I have not seen this in other Argidae.

imitatrix (Cameron), new combination — Guatemala; Mexico (Tamaulipas)

**Dielocera imitatrix* Cameron 1883: 42-43, pl. 1, fig. 4. F. "Guatemala, Duenas" (London, F.) (as *Ptilia imitatrix* on legend for figure).

Dielocerus imitator: Dalla Torre 1894: 323 (emendation?).

Dieloceros imitator: Konow 1905a: 24.

The holotype is BM #1.137. I have seen additional specimens from Guatemala and one specimen from Mexico (9 mi. S. Villigran, Tamaulipas).

liturata (Konow), new combination — Ecuador

**Rhagonyx lituratus* Konow 1903: 108. F. "Ecuador (Guayaquil)" (Eberswalde, F.)— Konow 1905a: 25.— Oehlke and Wudowenz 1984: 393 ("2 F. vom genannten fundort. Das eine F. wurde von D. R. Smith als Lectotypus designiert").

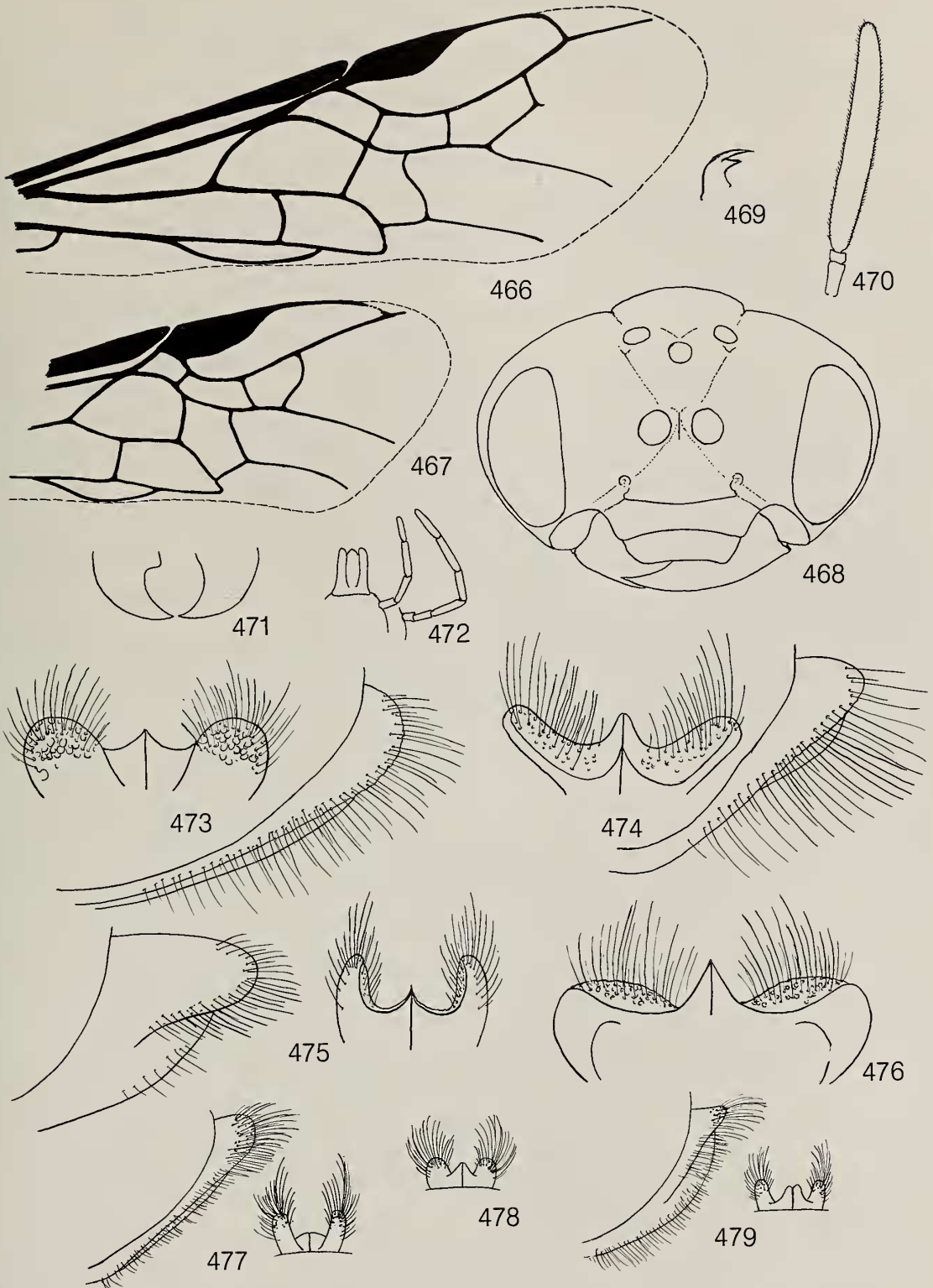
Host: Reared from *Sida rhombifolia* (Malvaceae) from "along banks of Rio Guayas, northwest of Guayaquil, Ecuador."

Two females are at Eberswalde, both labeled "Ecuador, Guayaquil, 3.1901." I labeled one as lectotype but did not publish on it prior to Oehlke and Wudowenz (1984). The other specimen is a paralectotype. This is the southernmost species of *Neoptilia*.

malvacearum (Cockerell) — Mexico (Chihuahua, México, Tamaulipas); U.S.A. (Arizona, New Mexico, Texas)

**Nematoneura malvacearum* Cockerell 1894: 251-253. F. M. larva. "Santa Fé, N. Mex." (Washington, M.) (biological note; hosts a, e).

Neoptilia malvacearum: Rohwer 1912d: 207.— Ross 1951: 15 (host c).— Burks 1967: 15 (host a).— Smith 1971b: 539-540, fig. 2, 12, 13, 49, 76, 80 (F., M.; description; hosts a-



Figs. 466-479. *Neoptilia*. 466, Forewing of *N. biramosa*. 467, Forewing of *N. malvacearum*. 468, Front view of head of *N. biramosa*. 469, Tarsal claw of *N. biramosa*. 470, Female antenna of *N. biramosa*. 471, Mandibles of *N. biramosa*. 472, Palpi of *N. biramosa*. Female sheaths of 473, *N. tora*; 474, *N. biramosa*; 475, *N. malvacearum*; 476, *N. xicana*; 477, *N. imitatrix*; 478, *N. nyvsa*; 479, *N. opulesa*.

d).—Smith 1972: 179-181, fig. 39-42 (larva; hosts a-d).—Smith 1979: 23-24 (hosts a-d).

Hosts: a) *Althaea rosea*; b) *Malvastrum* sp.; c) *Malva* sp.; d) *Sphaeralcea* sp.; e) *Sphaeralcea angustifolia*, (Malvaceae).

The only specimens I have seen from Mexico are from the states of México (Teotihuacan) and Chihuahua (36 mi. SE Cd. Jimenez). Also two U. S. Plant Quarantine interceptions, are labeled "Tampico, Mex. (POE Brownsville, Tex.), on *Hibiscus esculentus*" and "Juarez, Mex. (POE El Paso, Tex.), on mixed vegetables."

nyvsa Smith, new species — Guatemala

Neoptilia nyvsa Smith.

Female.—Length, 12.0 mm. Black, mesonotum red with small black spot on anterior half of each lateral lobe. Wings uniformly moderately black infuscated; veins and stigma black. Antennal length to head width as 5.0:3.4. Lower interocular distance to head width as 2.1:1.4; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.4:0.8. Length of hindbasitarsus slightly shorter than length of remaining tarsal segments combined. Sheath with short narrow scopae (Fig. 478). Serrulae of lancet flat, those on apical 1/2 of lancet not differentiated from each other (Fig. 484).

Male.—Unknown.

Holotype.— $\bar{\text{E}}$, "Guatem." (Cambridge).

Remarks.—The black coloration, except for the mesonotum, and the flat serrulae of the lancet will distinguish *nyvsa*. No other species of *Neoptilia* have such flat serrulae.

opulesa Smith, new species — Panama ?, Venezuela

Neoptilia opulesa Smith.

Female.—Length, 9.5 mm. Antenna and head black, palpi brownish. Thorax black with pronotum except for black mesal area (in front of mesoprescutum) orange. Legs black with forecoxa and foretrochanter white, apices of mid- and hindcoxae and entire mid- and hindtrochanters white, narrow white line on inner surface of forefemur, and outer surface of foretibia whitish. Abdomen orange with basal plates and lateral spots on 2nd tergum black. Wings hyaline with apex from base of stigma moderately blackish; veins and stigma blackish. Head and thorax with dense whitish pubescence, absent on mesosternum. Antennal length to head width as 4.6:3.2. Lower interocular distance to

eye length as 1.9:1.4; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.4:0.7. Length of hindbasitarsus slightly shorter than length of remaining tarsal segments combined. Sheath with narrow peglike scopae (Fig. 479). Serrulae of lancet large, rounded, close together (Fig. 485).

Male.—Unknown.

Holotype.— $\bar{\text{E}}$, "Venezuela: Guarico, Hato Masaguaral (44 km S Calabozo) May 3-10, 1985, Menke and Carpenter" (Washington).

Paratype.—VENEZUELA: El Baul, Cojedes, 20-VII-1967, J. and B. Bechyne, leg (1 $\bar{\text{E}}$) (Maracay).

Remarks.—A male from Panama (Chiriqui, Potrerillos, 3600') may be this species as it is similarly colored. *Neoptilia biramosa* is very similar to *opulesa* and is the only species with which it may be confused; however, *opulesa* has large, rounded serrulae that are close together, narrower scopae of the sheath, and whitish coxae and trochanters.

palla Smith, new species — Honduras; Mexico (Yucatán)

Neoptilia palla Smith.

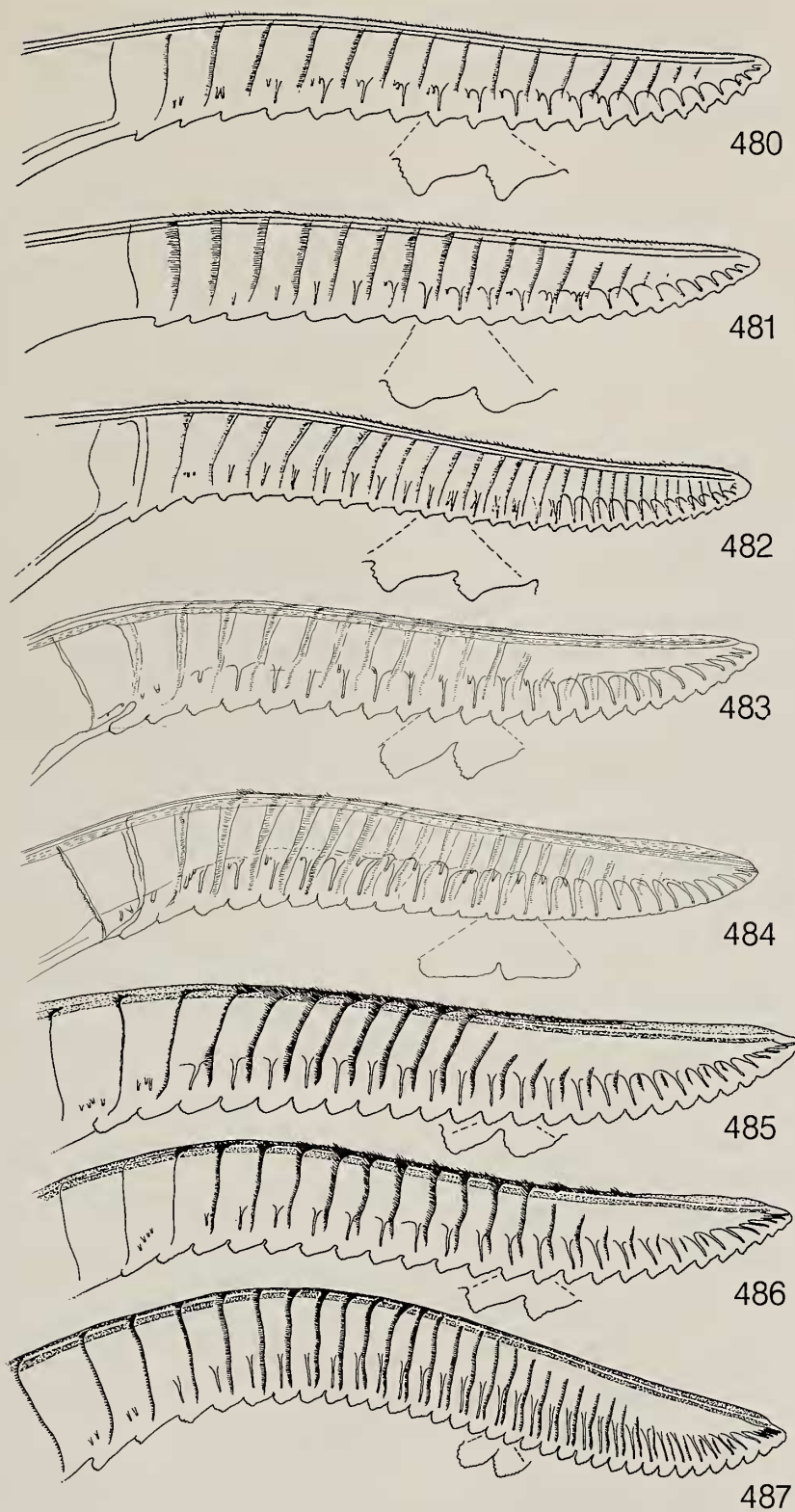
Female.—Length, 9.5 mm. Antenna and head black. Thorax black with lower portion of cervical sclerites, pronotum, tegula, parapteron, upper 1/2 of mesepimeron, and mesonotum (except for black anterior 2/3 of prescutum and blackish deflexed sides of lateral lobes) red. Legs black with apices of coxae and entire trochanters whitish. Abdomen black. Wings uniformly, darkly black infuscated; veins and stigma black. Head and thorax with moderate whitish pubescence, absent on lower portion of mesepisternum and mesosternum. Antenna slightly laterally flattened, 3rd segment of uniform width throughout, not tapering; antennal length to head width as 4.4:3.2. Lower interocular distance to eye length as 1.7:1.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.5:0.6:0.7. Length of hindbasitarsus slightly shorter than length of remaining tarsal segments combined. Sheath with narrow, thick scopae (similar to that of *opulesa*, Fig. 479). Serrulae of lancet close together, lobelike, with several anterior and no posterior subbasal teeth (Fig. 488).

Male.—Unknown.

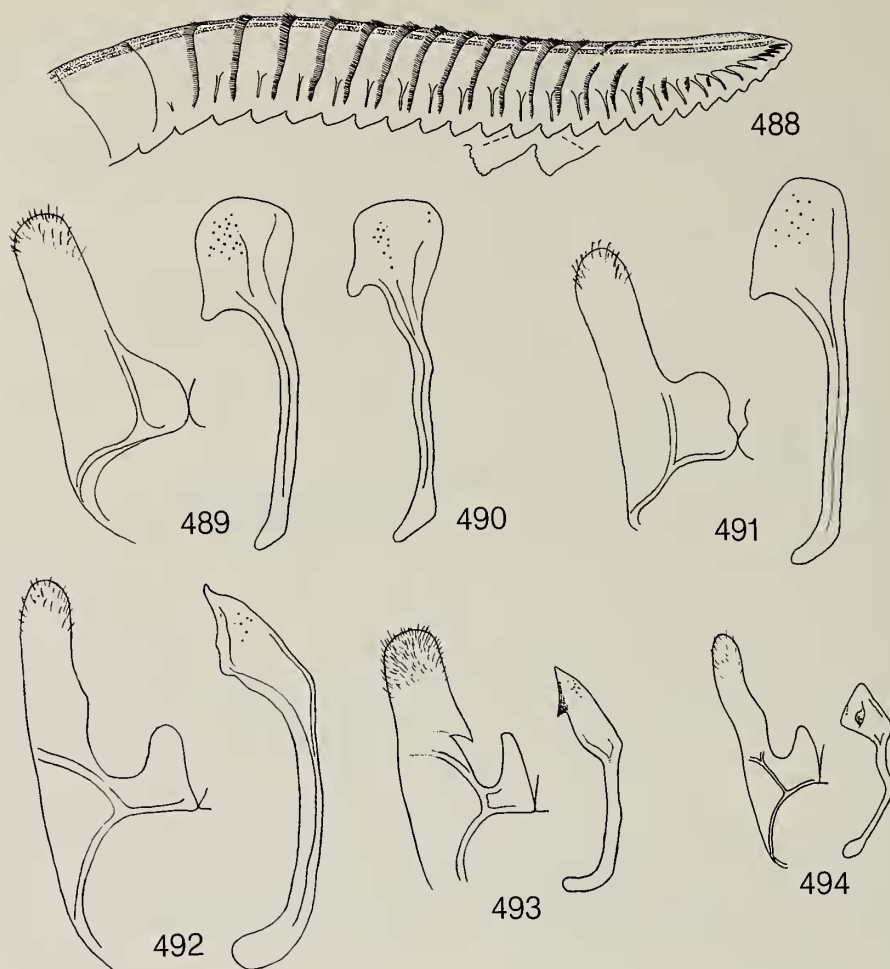
Holotype.— $\bar{\text{E}}$, "Chichen Itza, Yucatan, Mex., VI-29, collection J. Bequaert" (Cambridge).

Paratype.—HONDURAS: El Boqueron, Olancho, 10-XII-1979, R.W. Jones (1 $\bar{\text{E}}$) (College Station).

Remarks.—The coloration of the thorax, whitish



Figs. 480-487. *Neoptilia*, female lancets. 480, *N. malvacearum*; 481, *N. xicana*; 482, *N. biramosa*; 483, *N. liturata*; 484, *N. nyvsa*; 485, *N. opulesa*; 486, *N. imitatrix*; 487, *N. stata*.



Figs. 488-494. *Neoptilia*. Female lancet of 488, *N. palla*. Male genitalia of 489, *N. malvacearum*; 490, *N. xicana*; 491, *N. tora*; 492, *N. biramosa*; 493, *N. imitatrix*; 494, *N. liturata*.

trochanters, slender third antennal segment, and lancet will distinguish *palla*. The black abdomen and legs may confuse *palla* with *stata*, *tora*, and *xicana*. The paratype has the pronotum, tegula, cervical sclerites, parapteron, upper half of the mesepisternum, and mesoscutellum yellow and the mesonotal lateral lobes red. The contrasting colors are not as apparent in the holotype.

***stata* Smith, new species — Guatemala**

Neoptilia stata Smith.

Female.—Length, 10.5 mm. Black with mesonotum and tegula red and outer surface of foretibia whitish. Wings darkly, uniformly black infuscated; veins and stigma black. Head and thorax with moderate whitish pubescence, absent on lower mesepisternum and

mesosternum. Antenna with 3rd segment broad, laterally flattened, and distinctly tapering toward apex. Antennal length to head width as 4.3:3.2. Lower interocular distance to eye length as 2.0:1.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.6:0.7. Length of hindbasitarsus slightly shorter than length of remaining tarsal segments combined. Sheath broad, scopae not distinct and not decidedly protruding (similar to that of *tora*, Fig. 473). Serrulae of lancet rounded, lobelike, close together (Fig. 487).

Male.—Unknown.

Holotype.—♀, "Salama, Guate., 3000 ft., VII-29-1947, F. Johnson Donor, Cols. C. and P. Vaurie" (New York).

Remarks.—The black coloration with only the mesonotum and tegula red, lack of distinct scopae on

the sheath, and lobelike serrulae of the lancet will separate *stata* from other species of *Neoptilia*.

tora Smith — U.S.A. (Texas)

**Neoptilia tora* Smith 1971b: 540-541, fig. 16, 17, 78, 81. E, M. "Maxwell, Texas" (Washington, M).— Smith 1979: 24.

This species is listed because it may occur in Mexico. One specimen was reared from "Welde," but I don't know what this common name refers to. Some *Reseda* spp. are sometimes referred to as "weld."

xicana Smith — Mexico (Colima, San Luis Potosi, Tamaulipas, Veracruz)

**Pseudocyphona mexicana* Ashmead 1898: 211. E. No locality. (Washington, E) (preoccupied in *Neoptilia* by *mexicana* Ashmead 1898: 213).— Rohwer 1911a: 106 (holotype E, from "San Rafael, Jicoltepec, Mexico").

Neoptilia xicana Smith 1971b: 542-543 (E, M; new name for *Pseudocyphona mexicana* Ashmead).

Genus **PTILIA** Lepeletier

Ptilia Lepeletier 1823: 49. Type species: *Ptilia brasiliensis* Lepeletier. Desig. by Rohwer 1911a.

Antenna (Fig. 498) with 1st segment longer than broad, 2nd segment broader than long; 3rd segment of female antenna usually curved, slender, laterally flattened, tapering to pointed apex; antennal length longer than head width. Malar space linear; clypeus subtruncate; palpi long, maxillary palpus longer than

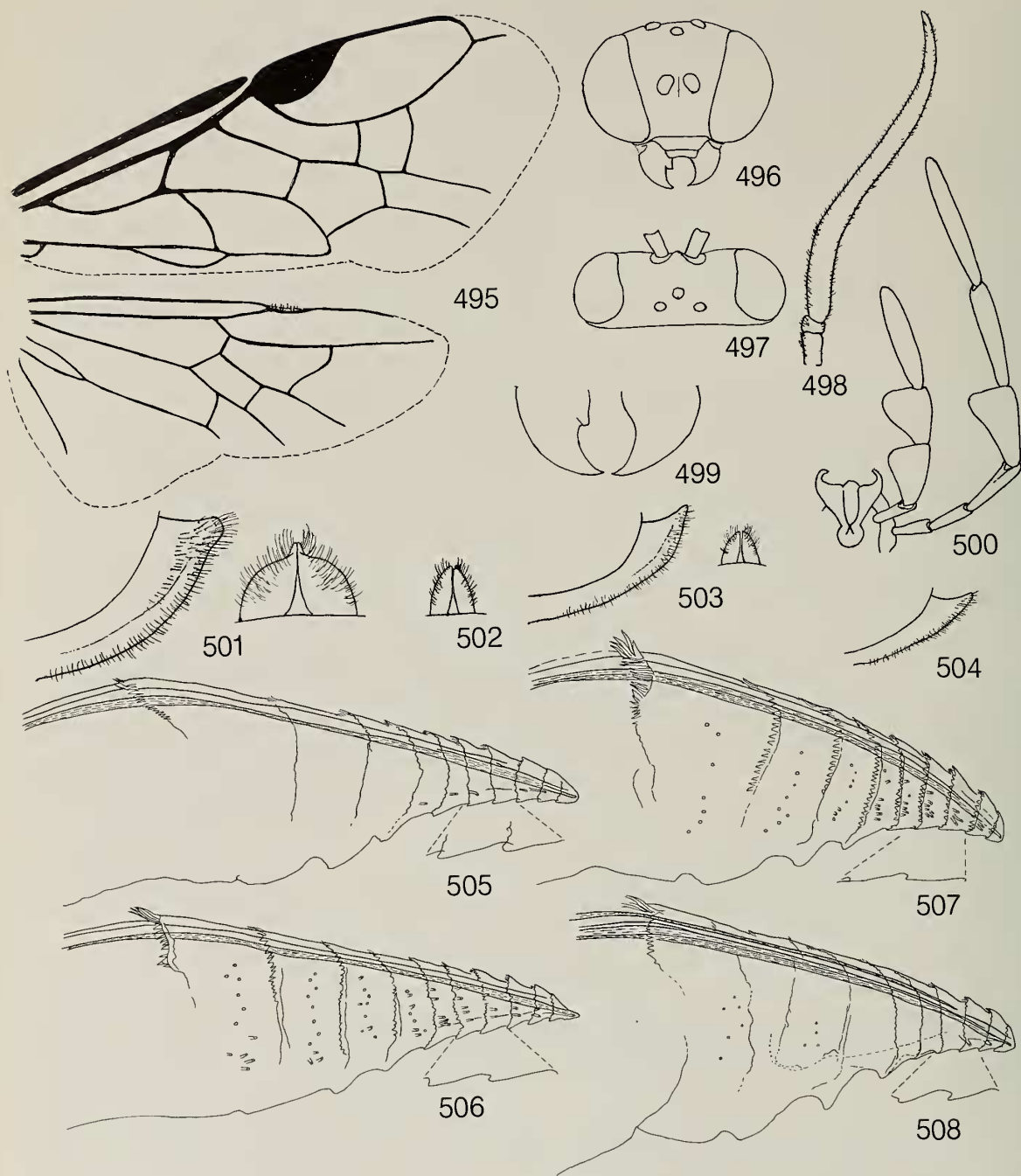
eye length, 2nd and 3rd segments of labial palpus and 4th segment of maxillary palpus enlarged (Fig. 500); left mandible simple, right mandible with basal tooth (Fig. 499); eyes large and converging below, lower interocular distance less than eye length (Fig. 496), in side view, close to posterior margin of head; head from above sharply narrowing behind eyes and slightly depressed anteriorly between eyes, postocellar area much broader than long (Fig. 497); interantennal carina low, rounded. Forewing (Fig. 495) with radial cell closed and accessory vein at apex; costa narrower than intercostal area; 3 cubital cells, last closed cell as long as or slightly longer on radius than on cubitus; distance between M and Rs+M on Sc+R subequal to or longer than length of vein M; small basal anal cell present. Hindwing (Fig. 495) with anal cell present, shorter than its petiole. Length of hindbasitarsus longer than length of remaining tarsal segments combined; tarsal claws simple. Female sheath pointed and acute at apex in lateral view (Figs. 501-504).

The curved, flattened, tapering antennae, large eyes with the lower interocular distance much shorter than the eye length, closed radial cell and presence of three cubital cells in the forewing, and pointed female sheaths are characteristic of *Ptilia*. The short, triangular female lancets are also diagnostic (Figs. 505-509). Most species are yellow or orange and black and have yellowish wings with various black patterns. They are among the more striking sawflies of the neotropics. Malaise (1949) gave a key to some of the species treated here.

Ptilia occurs from Mexico to southeastern Brazil. Two host plants are known, *Cnestidium* sp. and *Rourea* sp., both Connaraceae.

KEY TO SPECIES

1. Forewing yellow with only apex black; abdomen black, at least from 4th segment to apex 2
- Forewing infuscated black at both base and apex, yellowish at center; only apical 2 or 3 abdominal segments black 5
2. Midleg and hindleg black; mesosternum orange or black (abdomen black with only basal plates orange; sheath as in Fig. 501; lancet as in Fig. 508; male genitalia as in Fig. 510) *brasiliensis* Lepeletier
- Midtibia and hindtibia partly and respective tarsi white; mesosternum orange 3
3. Mesonotum black (mid- and hindcoxae and trochanters orange; basal 3 abdominal segments orange; lancet as in Fig. 507; male genitalia as in Fig. 512) *townesi*, new species
- Thorax orange 4
4. Abdomen black with only basal plates orange; mid- and hindcoxae and trochanters usually black (sheath as in Fig. 502) *megaptera* (Cameron)
- Abdomen black with basal 3 segments orange; mid- and hindcoxae and trochanters orange *melanictera* (Klug)
5. Black at apex of wing mostly confined to radial cell; thorax orange with mesonotum mostly black; antennal length about 1.25X head width (sheath as in Fig. 504; lancet as in Fig. 506) *una*, new species
- Entire apical part of wing beyond stigma infuscated black; color of thorax various; antennal length about 1.75X head width 6



Figs. 495-508. *Ptilia*. 495, Forewing and hindwing of *P. versicolor*. 496, Front view of head of *P. versicolor*. 497, Dorsal view of head of *P. versicolor*. 498, Female antenna of *P. versicolor*. 499, Mandibles of *P. versicolor*. 500, Palpi of *P. versicolor*. Female sheaths of 501, *P. brasiliensis*; 502, *P. megaptera*; 503, *P. versicolor*; 504, *P. una*. Female lancets of 505, *P. versicolor*; 506, *P. una*; 507, *P. townesi*; 508, *P. brasiliensis*.

6. Basal black part of forewing with central hyaline spot; thorax orange, usually with mesonotum except scutellum black; lancet as in Fig. 505; male genitalia as in Fig. 511 (sheath as in Fig. 503) *versicolor* (Klug)
 — Basal black part of forewing solid black; thorax may be mostly orange, but mesosternum and mesonotum may have various amounts of black; lancet as in Fig. 509; male genitalia as in Fig. 513 *peletieri* (Gray)

SPECIES

brasiliensis Lepeletier — Brazil (Amazonas ?, Minas Gerais, Rio de Janeiro, Santa Catarina, São Paulo); French Guiana

Ptilia brasiliensis Lepeletier 1823: 50. F. "E Brasilia" (lost ?).— Blanchard 1840: 230.— Norton 1867: 62.— Kirby 1882: 44 (syn.: *xanthoptera* Perty).— Dalla Torre 1894: 319.— Konow 1905a: 26.— Malaise 1949: 6 (Minas Gerais, further records).— McCallan 1953: 126 (Trinidad).

**Schizocera xanthoptera* Perty 1833: 130, pl. 26, fig. 5. F, M. "Habitat ad flumen Rio negro dietum, Prov. ejusdem nominis" (München, M).

Hylotoma (*Schizocera*) *xanthoptera*: Klug 1834: 246.— Kriechbaumer 1884: 293.

Schizocerus xanthoptera: Norton 1867: 56.

Host: Specimens at the Instituto Oswaldo Cruz from Itatiaia, Est. do Rio, 700 m, bear a label "ex cocoon an Sapucaya zweig." This may be what is called Sapucaia (*Lecythis* sp., Lecythidaceae).

Perty had more than one specimen of *xanthoptera* as he figured the antennae of both sexes and stated differences in his description. Three specimens were sent to me from München. The lectotype of *xanthoptera* Perty, hereby designated, is a male labeled "1. Bras. Rio negro, Sch. *xanthoptera* Pty."; paralectotypes are one female labeled "689" (the head is missing and the abdomen and hindwings are glued onto a separate card on the same pin) and one female without a label. Another female in the same series sent to me from München is without labels and is a female of *Didymia martini* (Lepeletier) which superficially resembles *brasiliensis* in color. I have not seen specimens from Trinidad and was unable to examine those recorded by McCallan (1953). Trinidad is considerably out of the range of most other specimens I have studied. According to M. Ivie, a specimen of *Adiaclema tetricum* (Konow) (Tenthredinidae) from Trinidad was determined as *Ptilia brasiliensis*, and the specimens from Trinidad may be this *Adiaclema*. The coloration of the two is nearly identical. M. Ivie (personal correspondence) compared a specimen of *Adiaclema* with those in the collection of the University of the West Indies, St. Augustine, Trinidad. The specimen from French Guiana is labeled "Cayenne."

megaptera (Cameron) — Brazil (Espirito Santo)

**Rusobria megaptera* Cameron 1878: 151. F. "Brazil" (London, E).

Ptilia megaptera: Kirby 1882: 44.— Dalla Torre 1894: 320.— Konow 1905a: 27.

Ptilia megaloptera Schulz 1906: 84 (emendation).

The holotype is BM #1.140. I have seen several additional specimens from Espirito Santo.

melanictera (Klug) — Brazil (Alagoas, Pará, Rio de Janeiro)

**Hylotoma melanictera* Klug 1814: 309-310. F. "Pará in Brasilien" (Berlin, F).— Klug 1834: 245.— Kriechbaumer 1884: 75, 293.

Didymia melanictera: Norton 1867: 61.

Ptilia melanictera: Kirby 1882: 45 (Rio Janeiro).— Dalla Torre 1894: 320.— Konow 1905a: 27.— Malaise 1949: 6.

Four females of *melanictera* are at Berlin, each labeled "13714" and "Bahia, Para." The specimen with the large green determination label is hereby selected lectotype and the other three specimens are paralectotypes. The Rio de Janeiro record is from Kirby (1882). A specimen at Paris labeled "*martini* Lep." is this species. It is probably not the type of *martini* since its color differs from the original description and is the wrong sex (see *Didymia martini*).

peletieri (Gray) — Brazil (Amazonas, Mato Grosso); Colombia; Costa Rica; Guyana; Panama; Surinam; Trinidad and Tobago (both islands); Venezuela

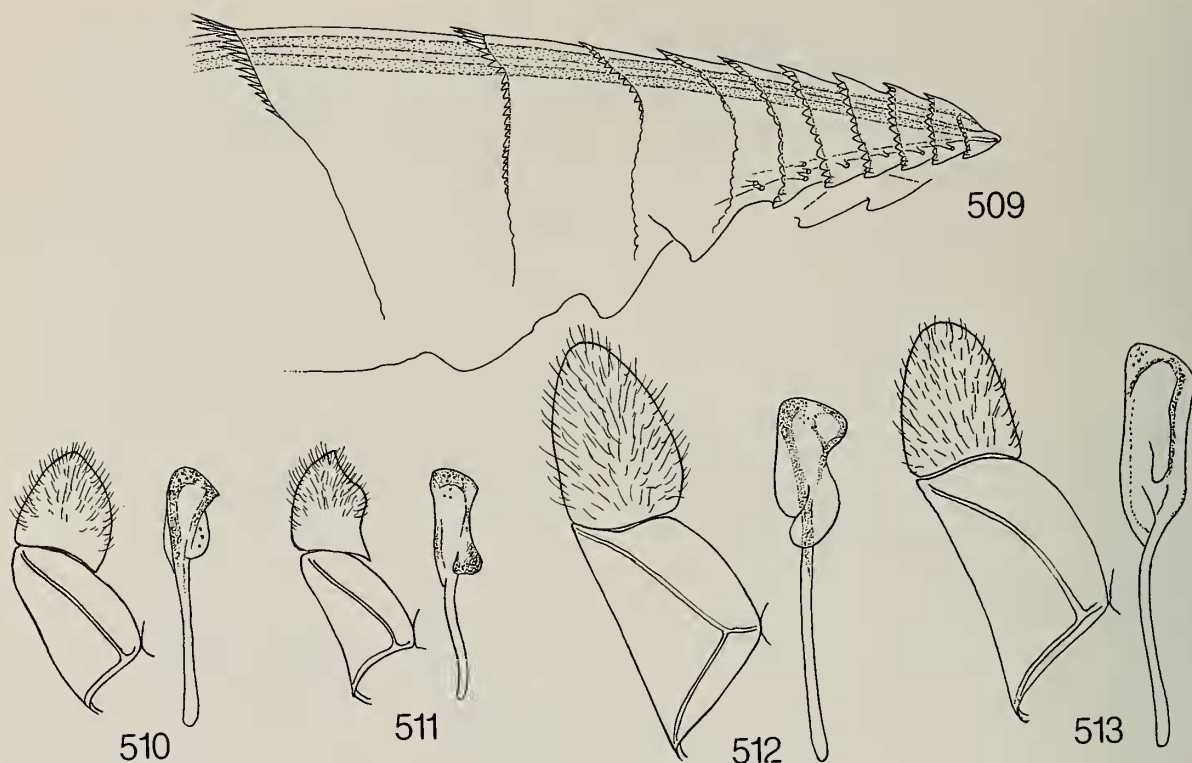
**Schizocerus peletieri* Gray 1832: 403, pl. 66, fig. 1. M. "Carthagera" (London, M).

Ptilia peletieri: Kirby 1882: 44 (*Peletierii*).— Dalla Torre 1894: 320.— Konow 1905a: 27.

**Hylotoma concinna* Klug 1834: 246, pl. 2, fig. 8. M. "Mexiko" (!) (Berlin, M).— Kriechbaumer 1884: 293. New synonymy.

Ptilia concinna: Kirby 1882: 46.— Cameron 1883: 44 (based on Klug's wrong locality).— Dalla Torre 1894: 319.— Konow 1905a: 26.— Malaise 1949: 7.— Kimsey and Smith 1985: 199-200, fig. 20-23 (larva; host a; biological note; Panama)

Didymia concinna: Norton 1867: 59.



Figs. 509-513. *Ptilia*. Female lancet of 509, *P. peletieri*. Male genitalia of 510, *P. brasiliensis*; 511, *P. versicolor*; 512, *P. townesi*; 513, *P. peletieri*.

**Rusobria leucosoma* Cameron 1878: 151-152. F. "Amazonia" (London, F). New synonymy.

Ptilia leucosoma: Kirby 1882: 45.— Dalla Torre 1894: 320.— Konow 1905a: 27.— Benson 1930a: 620-621 (British Guiana).— Malaise 1949: 7.— Mc Callan 1953: 126 (British Guiana).

**Ptilia lauta* Konow 1904: 239-240. F. "Costa Rica" (Eberswalde, F).— Konow 1905a: 27.— Oehlke and Wudowenz 1984: 392 ("Flectotypus (des. D. R. Smith)"). New synonymy.

**Ptilia lautiformis* Rohwer 1912a: 2. F, M. "Alhajueto, Panama" (Washington, F). New synonymy.

Host: a) *Cnestidium rufescens* (Connaraceae)

The holotype of *peletieri* was not separated in the type collection in London, but I did locate one male labeled "Carthagena" in their general collection. This specimen agrees with Gray's description and illustration. The type locality stated as "Carthagena" must be Cartagena, Colombia. The label on Klug's type of *concinna* reads "Surinam," and the specimen compares with other specimens I have seen from Surinam. I have not seen specimens from Mexico and therefore believe Klug gave the wrong locality in his description. I

studied two females of *lauta* at Eberswalde. The specimen from "Costa Rica, Atenas" and with Konow's determination label is the lectotype as stated by Oehlke and Wudowenz (1984). I labeled it but did not publish on the designation prior to Oehlke and Wudowenz. The other specimen from "Costa Rica, Belize" is *Ptilia versicolor* Klug. The holotype of *leucosoma* Cameron is BM #1.148. The variation in the amount of black on the mesonotum led to the description of the several species listed in the above synonymy. Klug's *concinna* is the paler form with a black mark only on the mesoprescutum, whereas *lauta* and *lautiformis* have most of the mesonotum black and *leucosoma* has the mesosternum black in addition to the mesonotum. The paler forms seem to be most common in Surinam and Guyana. One specimen from Trinidad has a yellow fibrous cocoon on the same pin and the label reads "cocoon from St. Pats." This species and *versicolor* are close and the genitalia are similar. The infuscation at the base of the wing seems constant and is the main character for separating the two.

townesi Smith, new species — Brazil (Minas Gerais)*Ptilia townesi* Smith.

Female.—Length, 7.0–9.0 mm. Antenna brownish to black; head and mouthparts black. Thorax orange with mesonotum black (apex of scutellum may be dark orange). Fore- and midlegs orange with tibiae and tarsi whitish; hindleg with coxa, trochanter, and extreme base of femur orange, most of femur except base black, tibia and tarsus white. Abdomen black with basal 3 segments orange. Forewing orange with apex beyond stigma black. Antennal length to head width as 6.0:3.0. Lower interocular distance to eye length as 1.2:2.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.4:0.5:0.3. Sheath short, acutely rounded at apex (similar to Fig. 501). Lancet as in Fig. 507.

Male.—Length, 6.8–8.1 mm. Coloration similar to that of female. Antennal length to head width as 5.8:3.0. Genitalia as in Fig. 512.

Holotype.—E, “Pedra Azul, M.G., Brazil, Nov., 70, F. M. Oliveira” (Townes Coll.).

Paratypes.—BRAZIL: Same locality as for holotype, XI-1971, Seabra and Oliveira (1 E); Aguas Vermelhas, 15° 45' S, 11° 28' W, 800 m., Dec. '83, Alvarenga (11 E, 7 M) (Townes Coll.; Gainesville).

Remarks.—The black mesonotum will separate *townesi* from *brasiliensis*, *megaloptera*, and *melanicta*, the three species with which it most likely confused.

una Smith, new species — Brazil (Amazonas, Goiás, Mato Grosso, Pará); Colombia; Guyana*Ptilia una* Smith.

Female.—Length, 5.7–6.2 mm. Antenna brownish, anterior surfaces of first 2 segments whitish; head black with supraclypeal area, clypeus, and mouthparts white to orange. Thorax orange with mesonotum except for apical 1/2 to 2/3 of scutellum black. Legs orange with apical 1/5 or less of hindtibia and entire hindtarsus black. Abdomen orange with apical 3 segments and sheath black. Wings hyaline with intercostal area of fore- and hindwings, small spot at base of forewing, spot half way between base and stigma of forewing, and spot occupying apical 2/3 of radial cell of fore- and hindwings black; stigma and veins in pale parts yellowish, in black parts blackish. Antennal length to head width as 3.6:2.8. Lower interocular distance to eye length as 2.4:3.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:1.0:0.6. Length of hindbasitarsus

to length of remaining tarsal segments combined as 2.4:2.3. Sheath narrow and sharply pointed at apex (Fig. 504). Lancet short and triangular with ventral margin straight (Fig. 506).

Male.—Unknown.

Holotype.—E, “Demerara R., Brit. Guiana, 20.III.1913” (Ithaca).

Paratypes.—BRAZIL: Vill Vera, W50°30', S12°30', October 1973, M. Alvarenga (2 E); Tucuruf, Pará, I-1979, M. Alvarenga (1 E); Sinop, M. Grosso, 12°31' S, 55°37' W, Oct. 1976, M. Alvarenga (1 E); Amazonas, 60 km. N. Manaus, Fazenda Esteio, 2F3, km 23, II-4-1986, B.C. Klein (1 E), same, 12-XI-1986 (1 E), same 12-XII-1985 (1 E). COLOMBIA: 26 km E. Santa Marta, 15-II-1979, R. Wilkerson, 0-50M (1 E). GUYANA: Same data as for holotype, II-28-1913 (1 E), II-24-1913 (1 E); Kartabo Bartica District, 21-VII-1922 (cocoon attached) (1 E) (Ithaca; Gainesville; Manaus; New York; Townes Coll.).

Remarks.—The black spot at the apex of the forewing is confined mostly to the radial cell, differing from other species of *Ptilia* which have the entire apex of the wings beyond the stigma black infuscated. The lancet is straighter on the ventral margin and the sheath is narrower than in the related *peletieri* and *versicolor*. Also, the shorter antenna of *una* which is about 1.25 times the head width, versus the longer antennae of *peletieri* and *versicolor* which are about 1.75 or more times the head width, is an additional character.

versicolor (Klug) — Belize; Costa Rica; Guatemala; Honduras; Mexico (Chiapas, Guerrero, Jalisco, Nayarit, Oaxaca, Quintana Roo, San Luis Potosi, Tabasco, Tamaulipas, Veracruz, Yucatán)

**Hylotoma* (*Schizocera*) *versicolor* Klug 1834: 246. E. “Mexiko” (Berlin, E).—Kriechbaumer 1884: 321.

Ptilia versicolor: Kirby 1882: 46.—Cameron 1883: 44, pl. 1, fig. 9 (syn.: *basipunctata* Kirby).—Dalla Torre 1894: 321.—Konow 1905a: 27.—Malaise 1949: 7.

Didymia versicolor: Norton 1867: 60 (Cordova and Tampico, Mex.).

**Ptilia basipunctata* Kirby 1882: 46, pl. 3, fig. 11. E. “Mexico, Vera Cruz, Honduras” (London, E).

Host: Reared from *Rourea glabra* (Connaraceae) in Costa Rica by D.H. Janzen. The cocoons are fragile and fibrous and are found on twigs.

The holotype of *basipunctata* is BM #1.141. This is a relatively common species in Mexico and Central America. I have seen specimens from all of the localities listed above.

Genus **SCHIZOCERELLA** Forsius

Schizocerella Forsius 1927: 19. Type species: *Schizocerella axillaris* Forsius. Orig. desig.

Sofus Malaise 1937a: 57. Type species: *Schizocera pilicornis* Holmgren. Orig. desig.

Sterictiphora subg. *Leston* Ross 1937: 54. Type species: *Schizocerus zabriskei* Webster and Malley. Orig. desig.

Antenna (Figs. 516-518) with 1st segment broader than long to slightly longer than broad, 2nd segment as long as broad or slightly broader than long; 3rd segment of female antenna slightly laterally compressed, of uniform width to rounded apex; antennal length slightly shorter than to slightly longer than head width. Clypeus truncate to slightly emarginate (Fig. 521) at center; malar space nearly linear to about 1/2 diameter of an ocellus; left mandible simple, right mandible with small basal tooth (Fig. 519); mouthparts short, maxillary palpus subequal to or slightly shorter than eye length, segments of palpi of uniform width or 3rd segment of labial palpus and 4th segment of maxillary palpus slightly enlarged (Fig. 520); eyes small, slightly converging below, lower interocular distance greater than eye length (Fig. 515); interantennal carina rather sharp or rounded, low and straight, not bisecting supraclypeal area below; head from above narrowing behind eyes. Forewing (Fig. 514) with radial cell open; costa swollen, broader than intercostal area; small basal anal cell present; usually 3 cubital cells with the last closed cell quadrate, about as long on radius as on cubitus; distance between M and R₅+M on Sc+R half or more than length of vein M. Hindwing (Fig. 514) with anal cell absent. Length of hindbasitarsus subequal

to or slightly shorter than length of remaining tarsal segments combined; tarsal claws simple.

Species of *Schizocerella* are small, 6 mm or less in length, with short antennae, a short interantennal carina, eyes far apart below with the lower interocular distance greater than the eye length, palpi short and with slightly or without expanded segments, radial cell of the forewing open, and anal cell of the hindwing absent. They may be confused with *Brachyphatnus*, especially within the geographic range of that genus, but are separated by the absence of the anal cell in the hindwing and the lack of a collar at the apex of the hindtibia, the apical spines of the hindtibia arising at the apex of the hindtibia.

Schizocerella pilicornis is the most common species, ranging from Canada to Argentina and adventive in Australia. It may be native to southern South America and spread to other parts of its range by commerce. Other than *pilicornis* only a few other species are known, and I have available only a few specimens from scattered localities referable to this genus, mostly from Brazil, Bolivia, and northern Argentina. Because of their small size, others are apt to be discovered, and more material will be necessary to adequately determine the true size and distribution of the genus, excluding *pilicornis*. With this in mind, the following key should be used cautiously.

Smith (1971b) treated *Schizocerella* for North America, including only *S. pilicornis*. Malaise (1941) synonymized *Leston* under his genus *Sofus*, and Benson (1963) synonymized *Sofus* under *Schizocerella*. Forsius based his genus, *Schizocerella*, on Australian specimens.

KEY TO SPECIES

1. Typical coloration black with pronotum, tegula, and mesonotal lateral lobes orange, abdomen with lateral longitudinal yellow to orange stripes, and legs black with apices of fore- and midfemora, fore- and midtibiae, and basal half or less of hindtibia white (amount of orange on mesonotum and laterally on abdomen may vary, mesonotum may be entirely black especially in males; sheath as in Fig. 522, with long, slender, posteriorly projecting scopae; lancet as in Fig. 526; male genitalia as in Fig. 529). ***pilicornis*** (Holmgren)
- Coloration not as above (check also structural features and illustrations). 2
2. Sheath from above with very short projecting scopae, in lateral view truncate at apex (Fig. 523); faint brownish longitudinal lateral stripe on abdomen (black with supraclypeal area and clypeus brownish; pronotum, tegula and parapteron orange, and tibiae except for extreme apices white). ***kierychi***, new species
- Sheath from above with long, slender, posteriorly projecting scopae, in lateral view rounded (Figs. 524, 525); abdomen black. 3

3. Head black; thorax black with only pronotum, mesepimeron, and sometimes parapteron orange; legs black with basal 1/3 or less of tibiae white; sheath as in Fig. 524; lancet as in Fig. 527; male genitalia as in Fig. 531. *treza* Smith
- Head black with supraclypeal area and clypeus brownish; thorax black with pronotum, tegula, mesepimeron and mesonotum orange except for black spots on prescutum and lateral lobes; legs black with apices of femora and tibiae and tarsi entirely white; sheath as in Fig. 525; lancet as in Fig. 528; male genitalia as in Fig. 530. *jenseni* (Konow)

SPECIES

jenseni (Konow)—Argentina (Chaco, Mendoza, Salta)

**Brachyphatnus jenseni* Konow 1906b: 252. E, M. "Rep. Argentina (Mendoza)" (Eberswalde, F).—Jørgensen 1913: 261.—Malaise 1955: 108 (not *jenseni*, misidentification; see *Brachyphatnus vesus*).—Oehlke and Wudowenz 1984: 390 ("F Lectotypus, 1 M, 2 F, Paralectotypen (des. D.R. Smith), vom obigen Fundort").

Schizocerella jenseni: Smith 1981: 287.

Malaise's (1955) *jenseni*, in his key to *Brachyphatnus*, is a misidentification and is the species described elsewhere as *Brachyphatnus vesus*. The types of *jenseni* lack an anal cell in the hindwing and do not have a collar at the apex of the hindtibia, the hindtibial spurs arising at the apex of the hindtibia and therefore greatly exceeding the apex of the hindtibia. One male and 3 females were sent to me from Eberswalde, and all have the same data: "Mendoza, Amer. Mer.", with Konow's determination label on the male. Since species of this genus are more easily separated by females I labeled a female lectotype and the other two females and male as paralectotypes. I did not publish on this prior to Oehlke and Wudowenz (1984).

kierychi Smith, new species—Brazil (Santa Catarina)

Schizocerella kierychi Smith.

Female.—Length, 4.5 mm. Antenna and head black with supraclypeal area, clypeus, labrum, and palpi brownish. Thorax black with pronotum, parapteron, and tegula orange, and brownish marks on side of mesoprescutum, inner and outer margins of mesonotal lateral lobes, and outer margins of mesoscutellum. Abdomen black with terga brownish laterally, appearing as a pale lateral margin. Legs black with tibiae whitish except for apical 1/3 of hindtibia and extreme apices of fore- and midtibiae; hindtibia brighter white than fore- and midtibiae. Wings very lightly, uniformly infuscated black, nearly hyaline; veins and stigma brownish. Antennal length about 3/4X head width, as 2.0:2.6; 1st and 2nd segments each broader than long,

3rd segment slightly laterally flattened, narrowing toward apex. Clypeus broadly, shallowly semicircularly emarginated; malar space linear; maxillary palpus subequal to eye length; short, sharp, straight interantennal carina present; lower interocular distance greater than eye length; postocellar area 2X broader than long; head from above sharply narrowing behind eyes; head shining, without punctures and without deep furrows. Length of hindbasitarsus equal to length of remaining tarsal segments combined. Sheath slender, long, very slight scopae at apex, in lateral view, truncated at apex (Fig. 533). Lancet not examined.

Male.—Unknown.

Holotype.—E, "S. Catarina, Luderwaldt" (Warszawa).

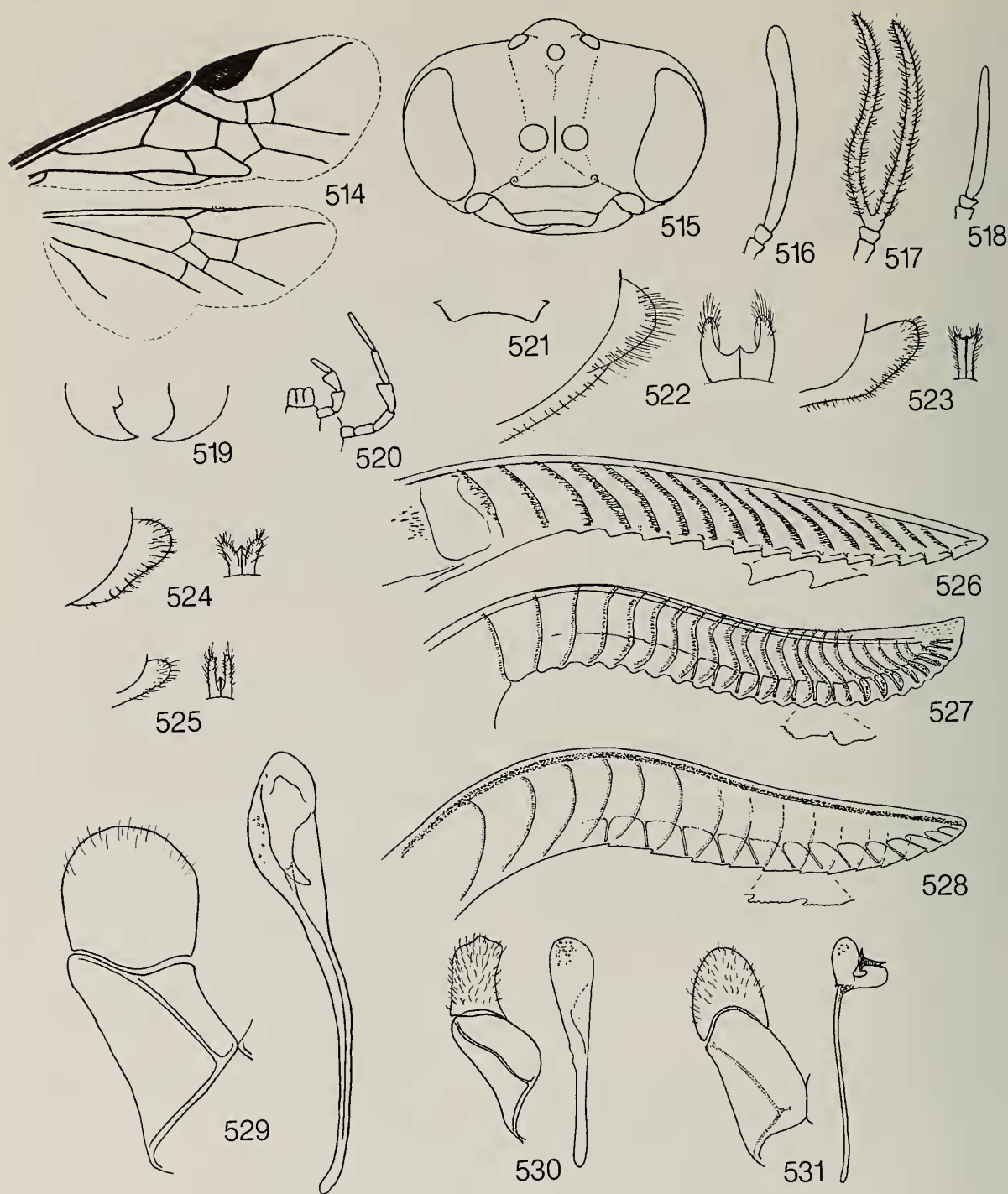
Remarks.—This species resembles *pilicornis* but the clypeus is semicircularly emarginated, and the sheath in lateral view is truncate at its apex and in dorsal view has very short scopae (compare Figs. 522, 523). The sheath structure also separates *kierychi* from the other species treated here.

pilicornis (Holmgren)—Argentina (Buenos Aires, Catamarca, Cordoba, Jujuy, Salta, Santa Fé, Tucumán, Yuto); Australia; Bolivia; Brazil (Rio de Janeiro, São Paulo); Canada; Guatemala; Mexico (Aguascalientes, Baja California Norte, Chihuahua, Durango, Guanajuato, Guerrero, Hidalgo, Jalisco, México, Morelos, Nuevo Leon, Oaxaca, Puebla, Sinaloa, Sonora, Tabasco, Tamaulipas); El Salvador; U.S.A.; Uruguay.

Schizocera pilicornis Holmgren 1868: 391-392. E, M. "Brasilia (Rio Jan. et Buen. Ayres)" (Stockholm, ?).—Konow 1900: 58 (compared with *Ptenus gonager* Klug).—Konow 1905a: 25 (as syn. of *gonager*).

Gymnia pilicornis: Kirby 1882: 43.—Dalla Torre 1894: 318. *Sofus pilicornis*: Malaise 1937a: 57, 58 (Argentina, s. Brazil; syn.: *lateralis* Konow).—Ross 1951: 16 (syn.: *zabriskiei* Webster and Malley).—Maxwell 1955: 35 (internal larval anatomy).—Kenchington 1972: 111-116 (silk gland morphology).

Schizocerella pilicornis: Benson 1963: 632-633 (syn.: *scapularis* Forsius; host a; in Australia).—Force 1965:



Figs. 514-531. *Schizocerella*. 514, Forewing and hindwing of *S. pilicornis*. 515, Front view of head of *S. pilicornis*. 516, Female antenna of *S. pilicornis*. 517, Male antenna of *S. pilicornis*. 518, Female antenna of *S. kierychi*. 519, Mandibles of *S. pilicornis*. 520, Palpi of *S. pilicornis*. 521, Clypeus of *S. kierychi*. Female sheaths of 522, *S. pilicornis*; 523, *S. kierychi*; 524, *S. treza*; 525, *S. jenseni*. Female lancets of 526, *S. pilicornis*; 527, *S. treza*; 528, *S. jenseni*. Male genitalia of 529, *S. pilicornis*; 530, *S. jenseni*; 531, *S. treza*.

- 157-160 (in central Calif.).— Moore 1966: 341, 344 (Australia; host a).— Burks 1967: 14 (N. Amer.).— Riek 1970: 890 (introduced, mines in leaves of host a in eastern Australia).— E. Smith 1970: 47, fig. 14A (defense mechanism; biol. notes; Calif.).— Smith 1971b: 544-546, fig. 3, 19, 20, 52, 83, 84 (E, M described; genitalia fig.; distribution; host b).— Smith 1972: 171-172, fig. 16-19 (larva, host b).— Lavigne and Tepedino 1976: 2 (Wyoming).— Gorske and Hoppen 1976: 326 (as biological control agent of purslane, host a).— Gorske et al. 1976: 580-582 (host specificity and response to selected pesticides; Ill.; hosts a, c).— Gorske and Sell 1976: 271-274 (genetic differences among biotypes; host a).— Gorske et al. 1977a: 104-106 (bionomics; Ill.; host a).— Gorske et al. 1977b: 6-7 (biological control; host a).— Gorske and Hoppen 1978: 14-15 (use for biological control of hosts a, c).— Gorske et al. 1978: 73-76 (use for biological control of purslane).— Gorske and Maddox 1978: 235-243 (a microsporidium in larvae).— Smith 1979: 25 (host b).— Clement and Norris 1982: 16-18 (use for biological control of host a in Calif.).
- **Schizoceros lateralis* Konow 1899b: 403-404. E, M. "Argentina resp. et Uruguay" (Eberswalde, M).— Konow 1905a: 29.— Oehlke and Wudowenz 1984: 392 ("M Lectotypus (des. D.R. Smith 1971), Argentinien. 1 E, ohne Fundort, müsste demnach Paralectotypus sein").
- Brachyphatnus lateralis*: Konow 1906b: 251.— Jörgensen 1913: 251.
- **Schizoceros zabriskiei* Webster and Malley 1900: 51. E, M. Wooster, Ohio. (not located).— Webster 1900: 318-319 (sudden disappearance in Ohio; host a; parasite).— Dyar 1900: 31 (*zabriskiei*; leafminers in host a; N.Y.; larva; biol. note).— MacGillivray 1910: 592 (N.J.).— Garlick 1922: 240 (host a; feeding habits).— Yuasa 1923: 102 (*zabriskiei*; larva).— Frost 1925: 410, 412 (feeding habit).— Taylor 1931: 462 (Dyar's rule applied to larvae).
- Aprosthemazabriskiei*: Markovitch 1916: 139-140 (life history, parasites; Minn.; host a).
- Sterictiphora zabriskiei*: Rohwer 1926: 877 (N.Y.; host a).— Ross 1937: 54 (syn.: *sericeiformis* Rohwer, *lineatus* Rohwer, *collaris* Rohwer, *johnsoni* MacGillivray).
- **Schizoceros sericeiformis* Rohwer 1908: 112-113. M. "Stratton, Nebraska" (Washington, M).
- **Schizoceros lineatus* Rohwer 1909: 12. E. "Geneva, Nebraska" (Washington, E).— Smith 1971b: 545 (lectotype).— Smith 1983: 367 (notes on lectotype).
- Sterictiphora lineata*: Rohwer 1912b: 97 (Colo.).— Rohwer 1926: 877 (N.Y.).— Smith 1943: 383 (Kansas; note; host a).
- **Schizoceros collaris* Rohwer 1909: 13. E. "Antonito, Conejos Co., alt. 7,888 ft., Colorado; also Nebraska, "office window", March 24, 1899, and Harlan, Nebr." (Washington, E).— Smith 1983: 367 (notes on lectotype).
- Sterictiphora collaris*: Rohwer 1912b: 97 (Colo.).
- "*S. johnsoni*" Ashmead 1900a: 602 (Riverton, N.J.; nomen nudum).
- **Schizoceros johnsoni* MacGillivray 1909: 403-404. E. "Riverton and Avalon, New Jersey" (Champaign, E).— MacGillivray 1910: 592 (N.J.).— Frison 1927: 260 (holotype).— Webb 1980: 111 (holotype E at Champaign).
- Schizoceros bilineatus* Rohwer in MacGillivray 1910: 592 (listed for N.J.; nomen nudum).
- Schizocerella axillaris* Forsius 1927: 19 (not described, given only as type species of genus).
- **Schizocerella scapularis* Forsius 1927: 19-21. E. "Broadwater, New South Wales" (London, E) (one paratype from Brisbane, Queensland).
- Hosts: a) *Portulaca oleraceae*, purslane; b) *Portulaca* sp.; c) *Montia perfoliata*.
- I could not locate the type of *pilicornis* Holmgren. Usage is based on the traditional concept of this species. A male and a female of *Brachyphatnus lateralis* were sent to me from Eberswalde. The male bears the data "Argentinien", "Coll. Konow", "Typus", and Konow's determination label. This specimen is the lectotype. The female has only two labels "Coll. Konow" and "Typus" and is a paralectotype. I labeled the two specimens as such but did not publish on them prior to the designation by Oehlke and Wudowenz (1984). The holotype of *S. scapularis* Forsius is BM #1.165. Larvae of *pilicornis* are either leaf miners or external leaf feeders. Gorske and other authors (1976-1978) have discussed these biotypes and genetic differences as well as the potential use of this species in biological control of its host plant which is a pest weed in North America.
- treza Smith — Brazil (D.F., Goiás, Minas Gerais)
- **Schizocerella treza* Smith 1981: 287, fig. 38, 39. E. "Res. Ecol. IBGE, Km 0 BR 251 - DF" (IBGE, E).
- Host: *Banisteriopsis* sp. (Malpighiaceae)
- The male, previously unknown, is similar in coloration to the female. The male genitalia are as in Fig. 531. Specimens from Braulio Dias bear the following data: Arrendidos, Munic., Cristalina, GO, BR 251, beira Corrego Gueiroba, emergência 15-17-VI-1985, ex larva em *Banisteriopsis* sp., cipo em capoeira ± 20 larvas em folha nova. A specimen from Belo Horizonte, Minas Gerais is 7 mm long, the other specimens examined are about 5.0-6.0 mm long.

Genus **SPHACOPHILUS** Provancher

Sphacophilus Provancher 1889: 427. Type species:
Sphacophilus crawii Provancher. Monotypic.

Sphacophilus subg. *Litocolus* Smith 1971b: 556. Type species: *Atomacera cellularis* Say. Orig. desig.

Sphacophilus subg. *Ceocolus* Smith 1971b: 562. Type species: *Schizocerus abdominalis* Cresson. Orig. desig.

Antenna (Fig. 541, 542) with 1st segment longer than broad, 2nd segment about as long as broad; 3rd segment of female antenna usually of uniform width or slightly tapering to rounded apex, sometimes laterally flattened; antennal length 1 to 2X head width. Clypeus truncate to subtruncate; malar space linear to equal to diameter of front ocellus, usually about 1/2 diameter of front ocellus; mouthparts relatively long, maxillary palpus equal to or longer than eye length, palpal segments not enlarged or sometimes 3rd segment of labial palpus slightly larger than others (Figs. 538, 539); left mandible simple or with few crenulations at base, right mandible with small tooth near base (Figs. 536, 537); eyes usually slightly converging below, lower interocular distance equal to or greater than eye length (exceptionally slightly less than eye length in several species) (Figs. 534, 535); head from above narrowing behind eyes; interantennal carina usually present, usually low, rounded, not bisecting supraclypeal area below; supraclypeal area convex. Forewing (Figs. 532, 533) with radial cell open at apex; costa usually broader than intercostal area; with small basal anal cell; with 3, rarely 4, cubital cells, the last closed cubital cell quadrate, as long as or slightly longer on radius than on cubitus; distance between M and Rs+M on Sc+R half or more length of vein M. Hindwing (Figs. 532, 533) with anal cell present, usually equal to or shorter than its petiole. Length of hindbasitarsus usually shorter than length of remaining tarsal segments combined, exceptionally as long as or slightly longer; tarsal claws simple.

The following key characters will separate members of this genus: open radial cell of forewing; usually 3 cubital cells in forewing with the last closed cell quadrate; basal anal cell present in forewing; hindwing with anal cell; eyes normally far apart with lower interocular distance usually longer than eye length; and palpi slightly longer than or subequal to eye length with segments usually of uniform width.

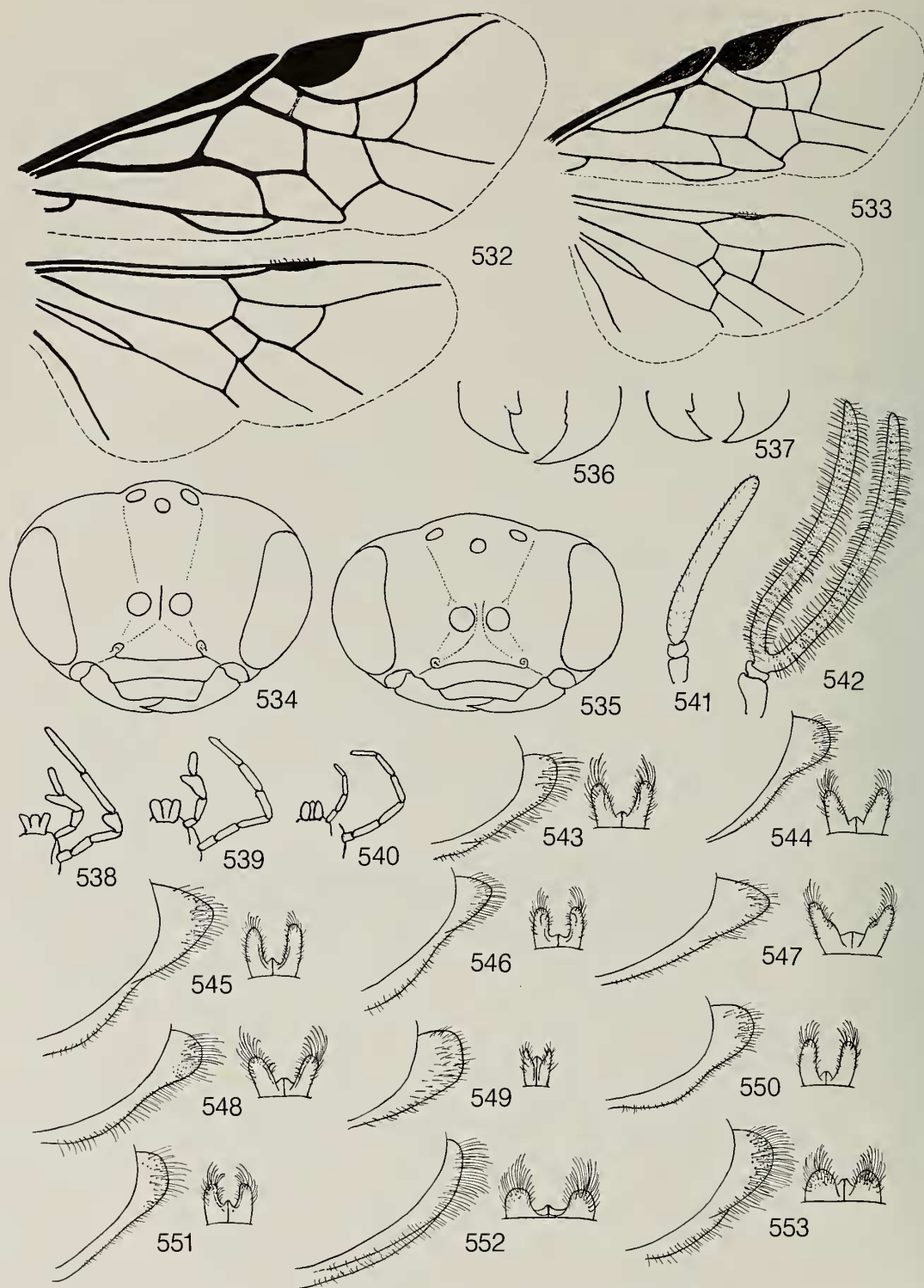
This genus is most diverse from southwestern United States to Central America and is relatively common in this area. Only a few species occur further north and south of this range. Separate keys are presented for southwestern United States to Central America and for

South America. Most known hosts are members of the Convolvulaceae and Leguminosae. North American species not included in the key are: *cellularis* (Say), eastern U.S., on *Convolvulus* and *Ipomoea*; *abdominalis* (Cresson), central U.S., on *Psoralea*; *albicosta* Smith, northwestern U.S., on *Psoralea*; *apios* (Ross), central and eastern U.S., on *Desmodium*, *Psoralea*; *nigriceps* (Konow), south central Canada, central U.S., on *Petalostemum*; *plumiger* (Klug), southeastern U.S., on *Petalostemum*; and *precarius* Smith, southeastern U.S. Smith (1971b) revised the North American (north of Mexico) members of *Sphacophilus* and proposed three subgenera, but I prefer not to use them here. The study was based on the fauna I studied at that time. Since then, I have examined numerous species from Mexico southwards and have noticed some gradation and difficulty in placing some species in the subgenera I defined. Most species can be placed in the three groups, and their diagnostic characters coincide with the proposed subgenera, but I believe species groups are best utilized. These groups may be defined as follows. (1) Previously the typical subgenus. This group includes *crawii* and *invitus*, separated by the cylindrical scopae of the sheath, presence of lateral spines on the lancet, short antenna which is subequal to the head width, and the lack of spines on the male penis valve. *Sphacophilus moniliatus* from South America may belong here. (2) *Litocolus* was used for those species with a simple, long sheath, long, multisegmented lancet, and presence of a short dorsal spine and lack of a lateral spine on the male penis valve (species included in couplets 4-14 and 43 of key). (3) *Ceocolus* was used for those species with a distinct scopa on the sheath, short, more triangular lancet, and presence of a long lateral spine on the male penis valve (species included in couplets 16, 17, 20-38, and 44-50 of key; most South American species would also belong here).

Most of the taxonomy is based on females. Males of few species have been associated, and differentiation is sometimes difficult because of subtle characters in the genitalia. The portion of the key treating males should be used with this in mind. The key to South American species should be used cautiously. Very few are known and more are apt to be discovered.

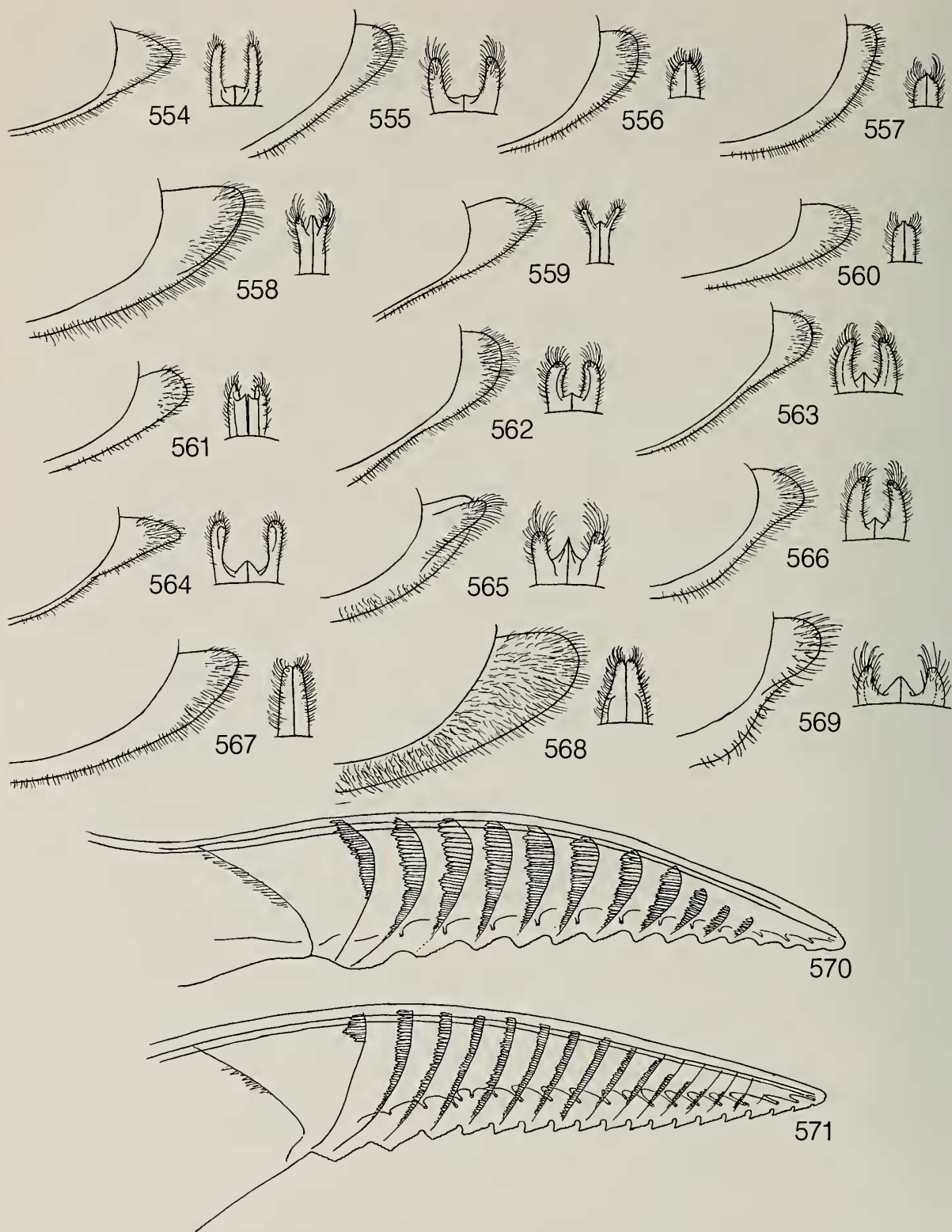
KEY TO SPECIES OF SOUTHEASTERN U.S. TO PANAMA

1. Female 2
- Male 39
2. Sheath simple (Figs. 556, 557, 560, 567, 568), or with very short scopae (Fig. 558). 3
- Sheath broad, with posteriorly or laterally expanded scopae (Figs. 543-555, 559, 561-566, 569) 15
3. Abdomen black (legs mostly black; orange to red only on mesonotum and sometimes pronotum) 4
- Abdomen mostly orange, apex may be black or some blackish marks on terga (legs orange or black) 6
4. Legs black with apices of coxae, trochanters, extreme bases of femora, inner surfaces of tibiae, and basitarsi white; mesonotum blackish with reddish lines on sutures (lancet as in Fig. 597; sheath similar to *iotus*, Fig. 567) *panitus*, new species
- Legs black, foretibia and basal 1/3 or less of mid- and hindtibiae may be whitish; mesonotum red or red with black on lateral margins of lateral lobes 5
5. Pronotum and tegula black, mesonotum orange; basal 1/3 or less of mid- and hindtibiae usually white; lancet as in Fig. 599; sheath similar to *iotus*, Fig. 567 *jucunus*, new species
- Pronotum orange, tegula orange or black, mesonotum orange with lateral areas of lateral lobes black; legs black; lancet as in Fig. 598; sheath as in Fig. 567 *iotus*, new species
6. Mesopleuron and mesonotum black or black on lateral lobes (mid- and hindlegs mostly black with apices of coxae and trochanters orange; abdomen with apical 2-3 segments usually black or most all orange with sheath black; lancet as in Fig. 596; sheath as in Fig. 568) *odontus*, new species
- Mesopleuron mostly orange or orange on upper portion and most of mesonotum orange 7
7. Legs orange to yellow with mid- and hindtibiae and tarsi or only hindtibiae and tarsi black; base of tibiae may be whitish 8
- Legs also with femora mostly black 9
8. Legs with apical 2/3 hindtibia and hindtarsus black; mesonotum with black on prescutum and lateral lobes; supraclypeal area black; lancet as in Fig. 601; sheath similar to *iotus*, Fig. 567 *nuntius*, new species (in part)
- Legs with mid- and hindtibiae and mid- and hindtarsi black; thorax orange; supraclypeal area orange; lancet as in Fig. 600; sheath as in Fig. 560 *madunus*, new species
9. Sheath with very short apical scopae (Figs. 558) (thorax orange with tegulae black, mesosternum sometimes with black marks on each side; abdomen orange, sheath black; antennal flagellum laterally flattened; lancet as in Fig. 572) *orus* Smith
- Sheath simple, without scopae (Figs. 556, 557) 10
10. Lancet short, with about 15 segments; serrulae distinct, pointed at apices (Fig. 576) (sheath as in Fig. 556; thorax orange with cervical sclerites, mesosternum, and lower or almost entire mesepisternum black; mesoprescutum sometimes with black mark; abdomen orange, sheath black) *orthius* Smith
- Lancet long, with 20 or more segments; serrulae low, flat, sometimes not differentiated from each other (Figs. 573-575) 11
11. Abdomen orange with apical 2 or 3 abdominal segments and sheath black (may be some variation, should run specimens through both couplets 12 and 13) 12
- Abdomen orange, sheath black or black on apical margin 13
12. Mesonotum orange with lateral lobes black; serrulae of lancet low and not well differentiated from each other, especially at apex (Fig. 574); sheath as in Fig. 557 (cervical sclerites, mesosternum, and lower mesepisternum black; fore- and midtibiae and basal 1/4 or less of hindtibia white) *apiculus* Smith
- Mesonotum orange; serrulae of lancet slightly deeper and distinguished from each other, even toward apex (Fig. 573); sheath like *iotus*, Fig. 567 (other color as for *apiculus*) *partitus* Smith
13. Head black; legs black; serrulae of lancet deeper and distinguished from each other (several specimens do not fit the species below, but not enough material is available to determine their status) unidentified species
- Head black with clypeus and usually supraclypeal area whitish to orange; part of legs white or orange; serrulae of lancet continuous and not clearly distinguished from each other (Figs. 575, 600) 14



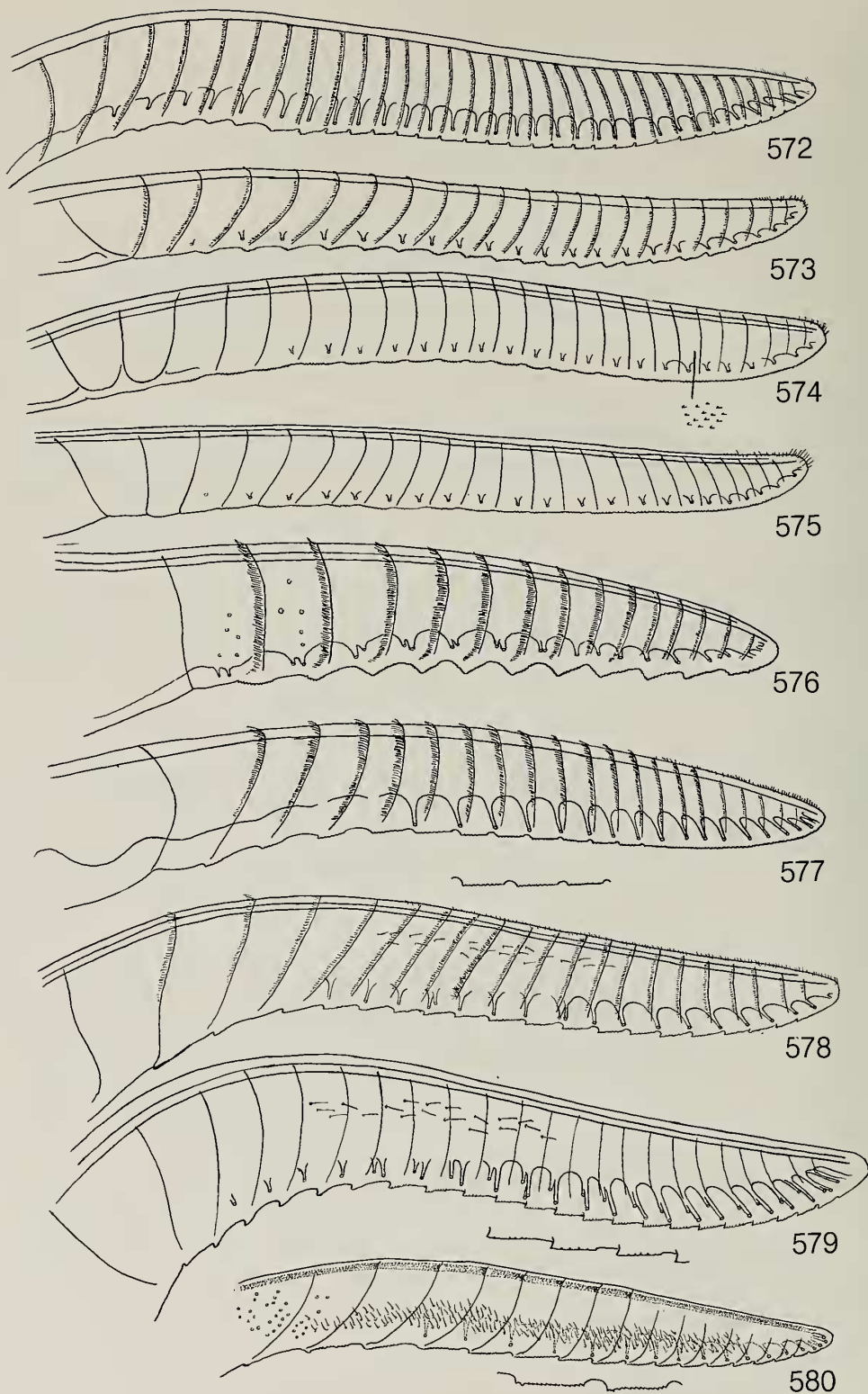
Figs. 532-553. *Sphacophilus*. 532, Forewing and hindwing of *S. apios*. 533, Forewing and hindwing of *S. crawii*. 534, Front view of head of *S. crawii*. 535, Front view of head of *S. janzeni*. 536, Mandibles of *S. janzeni*. 537, Mandibles of *S. centrus*. 538, Palpi of *S. janzeni*. 539, Palpi of *S. madunus*. 540, Palpi of *S. centrus*. 541, Female antenna of *S. crawii*. 542, Male antenna of *S. crawii*. Female sheaths of 543, *S. edus*; 544, *S. dissensus*; 545, *S. rallus*; 546, *S. oblatius*; 547, *S. usinus*; 548, *S. masoni*; 549, *S. centrus*; 550, *S. darus*; 551, *S. evansi*; 552, *S. argutus*; 553, *S. crenus*.

14. Thorax orange or sometimes with mesosternum partly black; sheath black; fore- and midtibiae and hindtibiae at base white; lancet as in Fig. 575; sheath similar to *iotus*, Fig. 567 *quixus* Smith
- Thorax orange with cervical sclerites black; sheath orange, only apical margin black; mid- and hindtibiae and tarsi black; lancet as in Fig. 600; sheath as in Fig. 560 *madunus*, new species (in part)
15. Sheath slender, divided only at apex into slender posterior-laterally projecting scopae (Fig. 559) 16
- Sheath broad, with slender or thick laterally projecting scopae extending from base or center of sheath (Figs. 543-555) 18
16. Entirely black, only outer surface of foretibia whitish *truncatus* (Cameron)
- Thorax and abdomen mostly orange 17
17. Thorax orange, sometimes with darkened areas on each side of mesoscutellum; abdomen orange; clypeus evenly punctate; malar space subequal to diameter of an ocellus; antenna less than 2X head width; lancet as in Fig. 582 (sheath as in Fig. 559) *holmus*, new species
- Thorax with mesosternum and mesoprescutum black or mostly black, mesepisternum and sometimes dorsum or apex of abdomen black; clypeus shining, with few or no punctures; malar space broader than diameter of an ocellus; antenna about 2 1/4X head width; lancet as in Fig. 602 (head seen in front view shorter and broader than that of *holmus*, eyes appearing smaller and more widely separated) *latus*, new species
18. Lancet with distinct annular spines (Figs. 570, 571); scopae of sheath somewhat cylindrical (best seen in lateral view, Fig. 565); mostly black (antennal length less than head width) 19
- Lancet with annular hairs, not stout spines (Figs. 577-581, 584-595, 603, 604); scopae of sheath broader or triangular (Figs. 544-555, 561-564); color various, usually considerable orange or red on thorax and/or abdomen 20
19. Annular spines short, equal to 1/2 or less width of segment; lancet with about 17 serrulae, each serrula truncate and separated by distinct notch (Fig. 571) (sheath as in Fig. 565) *crawii* Provancher
- Annular spines long, those on dorsal part of annuli more than 1/2 width of segment; lancet with about 13 serrulae, each serrula rounded at apex and not separated by deep notch (Fig. 570) *invitus* (Cresson)
20. Entirely black (antenna with 3rd segment stout, length less than head width; lancet as in Fig. 581; sheath as in Fig. 564) *memmonius* Smith
- Thorax and/or abdomen with some orange or red markings 21
21. Serrulae of lancet without subbasal teeth, deep and hooklike (Figs. 583, 588) 22
- Serrulae of lancet with subbasal teeth, flat, pointed, or rounded at apices (Figs. 577, 578, 586, 589, 590) 23
22. Thorax black; lancet as in Fig. 583; sheath as in Fig. 566 *ceraus*, new species
- Thorax orange, mesosternum and mesoprescutum usually blackish; lancet as in Fig. 588; sheath as in Fig. 555 *hamus* Smith
23. Head mostly orange, clypeus, spot on inner margin of each eye, ocellar area, and area anterior and posterior to ocelli may be black (thorax and abdomen orange) 24
- Head black, clypeus and supraclypeal area may be pale 26
24. Legs black (clypeus, labrum, mandible, palpi, ocellar area, and area anterior and posterior to ocellar area black; lancet as in Fig. 589; sheath as in Fig. 569) *tenuous*, new species
- Legs orange with tibiae and tarsi entirely or partly black 25
25. Serrulae of lancet flat (Fig. 590); head and mouthparts orange, only area immediately surrounding ocelli blackish; tibiae orange with outer surfaces of apical halves black; sheath as in Fig. 552 *argutus* Smith
- Serrulae of lancet deep, separated from each other by deep notch (Fig. 586); head orange with anterior margin of clypeus, labrum, palpi, and ocellar and surrounding area usually black; hindtibia black, other tibiae black usually only on outer surfaces; sheath as in Fig. 553 *crenus* Smith
26. Thorax entirely black (legs black, abdomen orange with apical segments and longitudinal stripe on dorsum black, or dorsum mostly black) 27
- Thorax with red or orange markings 28
27. Lancet as in Fig. 587, with few dorsal hairs; abdomen orange with apical 2-3 segments and faint longitudinal dorsal stripe black (sheath as in Fig. 562) *scutinus*, new species
- Lancet with serrulae not exactly as in Fig. 587, usually with many hairs on dorsum; abdomen various (miscellaneous specimens that do not fit *scutinus*, but too few to determine their status or describe further). unidentified species



Figs. 554-571. *Sphacophilus*. Female sheaths of 554, *S. triangularis*; 555, *S. hamus*; 556, *S. orthius*; 557, *S. apiculus*; 558, *S. orus*; 559, *S. holmus*; 560, *S. madunus*; 561, *S. janzeni*; 562, *S. scutinus*; 563, *S. barius*; 564, *S. memmonius*; 565, *S. crawii*; 566, *S. ceraus*; 567, *S. iotus*; 568, *S. odontus*; 569, *S. tenuus*. Female lancets of 570, *S. invitus*; 571, *S. crawii*.

28. Mostly orange, sometimes with black on cervical sclerites, mesosternum, mesoprescutum and/or apical abdominal segments; legs black or orange with part of tibiae and tarsi black (a number of unidentified specimens may not fit descriptions exactly) 29
 - Black with contrasting red only on thorax 32
29. Serrulae on apical half of lancet continuous, not differentiated from each other (Fig. 577) (sheath as in Fig. 546; usually mostly orange with outer surfaces of apical halves of mid- and hindtibiae and entire mid- and hindtarsi black, sometimes femora, mesosternum, and/or mesoprescutum blackish) *oblatus* Smith
 - Serrulae of lancet all distinct, separated by notch or area without subbasal teeth (Figs. 578-580) 30
30. Thorax and abdomen orange, sheath black; legs orange with outer surface of apical half of hindtibia black; scopae of sheath pointed at apex, triangular in lateral view (Fig. 554) (lancet as in Fig. 578) *triangularis* Smith
 - Thorax with mesosternum and usually mesoprescutum black, sometimes entire mesopleuron black; abdomen orange or black; legs black; scopae of sheath rounded at apex in lateral view (Figs. 545, 563) 31
31. Thorax orange with tegula, cervical sclerite, mesosternum, and lower 1/3 or less of mesepisternum black; antenna 2X head width; lancet as in Fig. 579; sheath as in Fig. 545 *rallus* Smith
 - Thorax with tegula orange, mesonotum orange with at least prescutum black, mesosternum and sometimes entire mesepisternum black; antenna less than 2X head width, usually about 1 3/4X head width; lancet as in Fig. 580 sheath as in Fig. 563 *barius*, new species
32. Dorsal and ventral halves of lancet different (Figs. 594, 595, 603); wings subhyaline, with area below stigma blackish 33
 - Annuli of lancet continuous from dorsum to venter, not different on dorsal and ventral halves (Figs. 584, 591-593); wings uniformly lightly or darkly infuscated black 35
33. Mesopleuron black (lower interocular distance greater than eye length; lancet as in Fig. 603; sheath as in Fig. 561) *janzeni*, new species
 - Upper portion of mesepisternum and upper half of mesepimeron red 34
34. Lower interocular distance greater than eye length; mesoscutellum red; scopae of sheath, stout, large (Fig. 550); lancet as in Fig. 595 *darus*, new species
 - Lower interocular distance subequal to eye length; mesoscutellum mostly black; scopae of sheath more slender (Fig. 543); lancet as in Fig. 594 *edus*, new species
35. Serrulae of lancet relatively deep (Fig. 591) (sheath as in Fig. 544; thorax red with cervical sclerite, mesosternum, sometimes lower part of mesepisternum, lower half of mesepimeron, triangular spot on mesoprescutum, and metathorax black) *dissensus* Smith
 - Serrulae of lancet flat (Figs. 584, 592, 593) 36
36. Lancet broad at base, tapering to more pointed apex (Figs. 592, 593) 37
 - Lancet of more uniform width, rounded at apex (Fig. 584) 38
37. Thorax black with only mesonotum red; lancet as in Fig. 592; sheath as in Fig. 547 *usinus*, new species
 - Thorax with pronotum and mesonotum orange with cervical sclerite, mesosternum, lower 1/2 of mesepisternum and mesepimeron, and triangular spot on mesoprescutum black; lancet as in Fig. 593; sheath as in Fig. 548 *masoni*, new species
38. Thorax with pronotum, mesonotum, and tegula red or orange, mesepisternum black to mostly orange, with intermediates; lancet as in Fig. 584; sheath as in Fig. 551 *evansi*, new species
 - Thorax with mesoprescutum black (lancet similar to *evansi*, but unable to determine if variation in color exists) unidentified species
39. Black with pronotum orange and mid- and hindbasitarsi and following 2 segments white; wings dark (genitalia not examined, probably with lateral spine as in Figs. 607-618) *leucotarsis* (Cameron)
 - A different combination of colors 40
40. Penis valve without spines (Figs. 605, 606) 41
 - Penis valve with short or long lateral or dorsal spines (Figs. 607-618) 42
41. Penis valve straight, apex of about same width throughout (Fig. 605) *invitus* (Cresson)
 - Penis valve curved ventrally at apex, widest point usually at apex (Fig. 606) *crawii* Provancher
42. Penis valve with short dorsal spine, without long lateral spine (Figs. 607, 608) 43
 - Penis valve without dorsal spine, with long lateral spine (Figs. 609-618) 44
43. Tibiae whitish; penis valve narrow at apex (Fig. 607) *quixus* Smith
 - Legs black, only foretibia whitish; penis valve broader at apex (Fig. 608) *orus* Smith

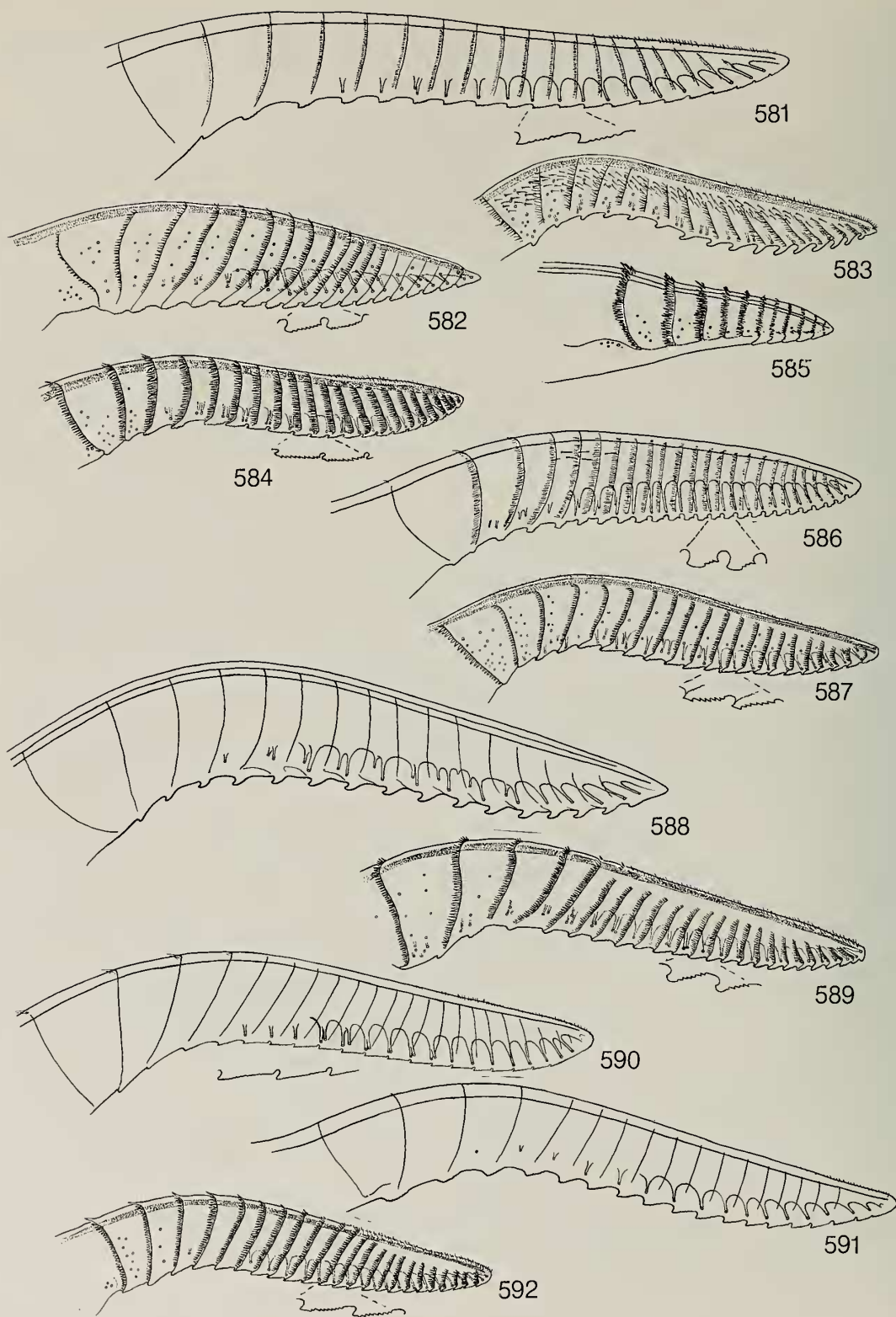


Figs. 572-580. *Sphacophilus*, female lancets. 572, *S. orus*; 573, *S. partitus*; 574, *S. apiculus*; 575, *S. quixus*; 576, *S. orthius*; 577, *S. oblatius*; 578, *S. triangularis*; 579, *S. rallus*; 580, *S. barius*.

- 44. Legs orange, coxae, bases of femora and/or apices of tibiae and entire tarsi may be blackish (abdomen orange; mesepisternum, pronotum, and mesoscutellum orange; genitalia as in Fig. 611). *oblatus* Smith
- Legs black 45
- 45. Entirely black 46
- Some red or orange on abdomen and/or thorax 47
- 46. Genitalia as in Fig. 609 *evansi*, new species
- Genitalia as in Fig. 610 *dissensus*, Smith
- 47. Abdomen black (pronotum, mesonotal lateral lobes and mesoscutellum red; spine of penis valve directed anteriorly, Fig. 613) *barius*, new species
- Abdomen orange, apical 1 or 2 segments may be black 48
- 48. Thorax black or black with mesonotal lateral lobes and mesoscutellum red; pronotum sometimes orange in *holmus* 49
- Thorax partly red or orange or with mesonotal lateral lobes mostly black 50
- 49. Genitalia as in Fig. 612 *holmus*, new species
- Genitalia as in Fig. 614 *latus*, new species
- 50. Mesonotum black; tegula black; genitalia as in Fig. 616 *crenus* Smith
- Usually mesoscutellum or lateral areas of mesonotum reddish; tegula red; genitalia as in Fig. 615 *hamus* Smith

KEY TO SPECIES OF SOUTH AMERICA

- 1. Head below antennae, thorax, abdomen, and legs mostly orange; black are: head above antennae, mesonotum, basal sterna, apical 1-2 terga, sheath, apical 1/2 to 2/3 hindtibia, and mid- and hindtarsi (wings lightly blackish, darker at base and apex; sheath similar to *centrus*, Fig. 549, but more rounded in lateral view) *peratus* (Konow)
- Mostly black or black above and orange below; pronotum, tegula, mesonotum, or pleurae and mesosternum may be red to orange; abdomen may be partly orange; legs black or yellow orange 2
- 2. Supraclypeal area, clypeus, and labrum yellow; thorax black above, orange yellow below; abdomen black with 2nd tergum white and sterna entirely orange yellow (antenna black with 1st segment yellow and 2nd segment yellow with black on outer surface; wings hyaline with intercostal area and radial cell of forewing more blackish; sheath slender, similar to *iotus*, Fig. 567) *cultricornis* (Konow)
- Head black; thorax with pleurae and mesosternum mostly black; abdomen black, orange with basal plates and apical 2 segments black, or black with orange laterally on segments 2-6 3
- 3. Abdomen orange with basal plates and apical 2 segments black or black with orange laterally on segments 2-6 . . . 4
- Abdomen black 5
- 4. Thorax black; abdomen orange with basal plates and apical 2 segments black; sheath similar to *hamus*, Fig. 555 *piceiventris* (Klug)
- Thorax black with pronotum and tegula orange; abdomen black with segments 2-6 orange laterally; sheath similar to *rallus*, Fig. 545 (lancet as in Fig. 604) *defius*, new species
- 5. Thorax black with pronotum, parapteron, tegula, mesonotum (except posterior margin of scutellum), and upper 1/4 of mesopleuron red (2 or 3 labial palpal segments appear enlarged in holotype; sheath similar to that of *orus*, Fig. 558, but shorter in lateral view) *blandus* (Konow)
- Thorax black with pronotum and tegula red; mesonotum may be orange with prescutum black (palpal segments narrow, of uniform width) 6
- 6. Mesonotum black; sheath broad in lateral view with short, blunt scopae, Fig. 549 (lancet as in Fig. 585; male genitalia as in Fig. 617) *centrus* Smith
- Mesonotum orange, prescutum with black spot; sheath narrower in lateral view, with round, cylindrical scopae, similar to *crawii*, Fig. 565, but scopae broader in lateral view *moniliatus* (Konow)



Figs. 581-592. *Sphacophilus*, female lancets. 581, *S. memmonius*; 582, *S. holmus*; 583, *S. ceraus*; 584, *S. evansi*; 585, *S. centrus*; 586, *S. crenus*; 587, *S. scutinus*; 588, *S. hamus*; 589, *S. tenuus*; 590, *S. argutus*; 591, *S. dissensus*; 592, *S. usinus*.

SPECIES

apiculus Smith — U.S.A. (Arizona)

**Sphacophilus (Litocolus) apiculus* Smith 1971b: 556-557, fig. 58. E. "Ramsey Canyon, Huachuca Mts., Arizona" (Washington, E).— Smith 1979: 25.

This species will probably be found in Mexico.

argutus Smith — U.S.A. (Arizona; New Mexico)

**Sphacophilus (Ceocolus) argutus* Smith 1971b: 566-567, fig. 45, 46, 66. E. "Tucson Mts., Arizona" (Washington, E).— Smith 1979: 26.

I have seen several specimens from Hatch, New Mexico. This species will likely be found in Mexico.

barius Smith, new species — Costa Rica (?); Mexico (Colima, Guerrero, Morelos)

Sphacophilus barius Smith.

Female.— Length, 7.0-7.5 mm. Antenna and head black. Thorax reddish with spot on mesoprescutum, cervical sclerites, mesosternum, and lower 1/2 of mesepisternum black, metathorax black or red. Legs and abdomen black or abdomen dark reddish. Wings darkly, uniformly blackish infuscated; veins and stigma black. Antenna with 1st segment as long as broad, 2nd segment slightly broader than long, 3rd segment tapering to apex; antennal length to head width as 7.5:4.5. Malar space equal to diameter of front ocellus; lower interocular distance to eye length as 2.8:1.8; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:0.8:0.7. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.8:3.5, subequal to length of following 3 tarsal segments. Sheath round in lateral view, halves of scopae slender, projecting posteriorly, long (Fig. 563). Lancet long, serrulae low and flat, with 16-18 serrulae (Fig. 580).

Male.— Length, 7.0 mm. Coloration similar to female except for mostly black mesopleuron. Antennal length to head width as 7.1:4.0. Genitalia as in Fig. 613.

Holotype.— E, "Cuernavaca, Mor., Mex., 9 '23, E.G. Smyth" (Washington).

Paratypes.— COSTA RICA: (POE JFKIA) [interception, port of entry John F. Kennedy International Airport, New York] on legume, 10-15-78, D. Walters (2 E, 1 M). MEXICO: Colima, X-1954, N. L. H. Krauss (1 E); 9 mi N. Taxco, Gro., 5700', August 29, 1963,

44, N. L. H. Krauss, Morelos (1 E); Cuernavaca, Mor., VII-9-61, R. and K. Dreisbach (1 E); Chilpancingo, Guer., 7-24-61, R. and K. Dreisbach (1 E); Xochicalco, Mor., 7-13-61, 4000', R. and K. Dreisbach (2 E). (Champaign, Washington).

Remarks.— The black body with the mostly red thorax, sheath shape and lancet as illustrated will separate *barius* from other species. The specimen from Cuernavaca by Krauss and the one from Xochicalco have the metathorax and abdomen red, otherwise all characters are the same as for the dark colored specimens. Such color variation is also known in other argids, such as *S. apios* (Ross) in the United States.

blandus (Konow) — Brazil (Pará)

**Gymnia blanda* Konow 1906b: 192. E. "Brasília (Itaituba)" (Eberswalde, E).— Oehlke and Wudowenz 1984: 370 (holotype).

Sphacophilus blandus: Smith 1981: 287.

I have seen only the holotype of this species.

centrus Smith — Brazil (D.F., Goiás)

**Sphacophilus centrus* Smith 1981: 286-287, fig. 36-37. E. "Res. Ecol. IBGE, Km 0 BR 251 - DF" (IBGE, E).

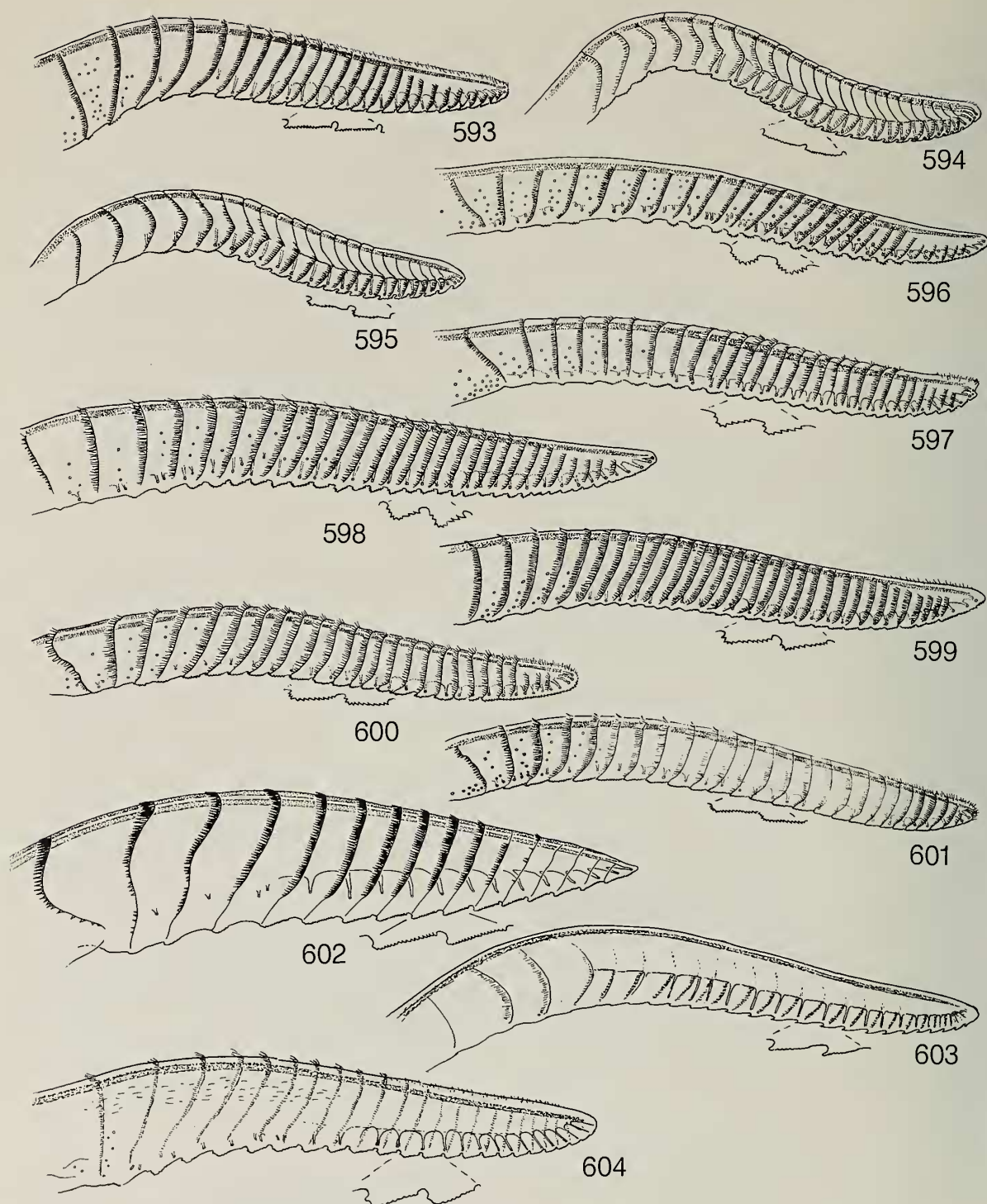
Host: *Stylosanthes guyanensis* (Leguminosae)

Both sexes are black with the pronotum, tegula, and sometimes the mesonotum adjacent to the tegula orange. I have seen females with the abdomen entirely black and black with segments 2-7 partly to entirely orange. The female sheath is as in Fig. 549; lancet as in Fig. 585; and male genitalia as in Fig. 617. Specimens sent to me from Braulio Dias have the following data: Sobiadiulio, D.F., "sur *Stylosanthes guyanensis*," dates of emergence 5-9-III-84, 29-II-84; Rio dos Waeaeas, Sto. Aut. Descobato - GO, 12-II-84, E pega poudo ovos em *Stylosanthes* sp.

ceraus Smith, new species — Mexico (Morelos)

Sphacophilus ceraus Smith.

Female.— Length, 6.0 mm. Antenna and head black. Thorax black, side of pronotum brownish. Legs black, apex of forefemur and foretibia whitish. Abdomen orange, margins of sheath black. Wings hyaline, veins and stigma dark brownish to black. Antenna with 1st segment as long as broad, 2nd segment a little broader than long, 3rd segment subequal to head width; anten-



Figs. 593-604. *Sphacophilus*, female lancets. 593, *S. masoni*; 594, *S. edus*; 595, *S. darus*; 596, *S. odontus*; 597, *S. panitus*; 598, *S. iotus*; 599, *S. jucunus*; 600, *S. madunus*; 601, *S. nuntius*; 602, *S. latus*; 603, *S. janzeni*; 604, *S. defius*.

distance to eye length as 2.5:2.0; malar space less than 1/2 diameter of front ocellus; postocellar area 3X broader than long; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:0.9:0.6. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.2:2.0, subequal to length of following 2 segments. Sheath rounded in lateral view; scopae slender, long, directed posteriorly (Fig. 566). Lancet with serrulae long, pointed at apices, each directed anteriorly, without subbasal teeth, "hooklike" in appearance; 16 serrulae; lancet slightly constricted toward base (Fig. 583).

Male.—Unknown.

Holotype.—*E*, "Cuernavaca, Mor., Mexico, VI-1945, N. L. H. Krauss" (Washington).

Paratypes.—MEXICO: Cuernavaca, Crawford (1 *E*); Cuernavaca, Mor., VI-7-59, 5500', H. E. and M. A. Evans (1 *E*). (Washington, Ithaca).

Remarks.—The lancet of *ceraus* (Fig. 583) resembles that of *hamus* (Fig. 588) by the hooklike appearance of the serrulae. The lancet of *ceraus*, however, is constricted toward its base, and *ceraus* has the thorax black, not mostly orange as in *hamus*. Also the antenna of *hamus* is longer, being about 1 1/2X the head width instead of only slightly longer than the head width in *ceraus*.

crawii Provancher —U.S.A. (Arizona, California, Idaho, New Mexico, Oregon)

**Sphacophilus crawii* Provancher 1889: 427. *E*. "Los Angeles" (Washington, *E*).—Ross 1951b: 16.—Smith 1971: 553-554, fig. 55, 89 (*E*, *M*).—Smith 1979: 25.

Sterictiphora crawii: Ross 1937: 54.

There are a number of records from southern California and Arizona. This species will undoubtedly be found in Mexico.

crenus Smith —U.S.A. (Texas)

**Sphacophilus (Ceocolus) crenus* Smith 1971b: 567, fig. 40, 73, 98. *E*, *M*. "Davis Mts., Texas" (Washington, *E*).—Smith 1979: 26.

I have seen additional specimens from Alpine and Big Bend, Texas. This species will undoubtedly be found in Mexico.

cultricornis (Konow), **new combination** — Bolivia

**Gymnia cultricornis* Konow 1906b: 243-244. *E*. "Bolivia (S. Antonio)" (Eberswalde, *E*).—Oehlke and Wudowenz 1984: 376 (holotype).

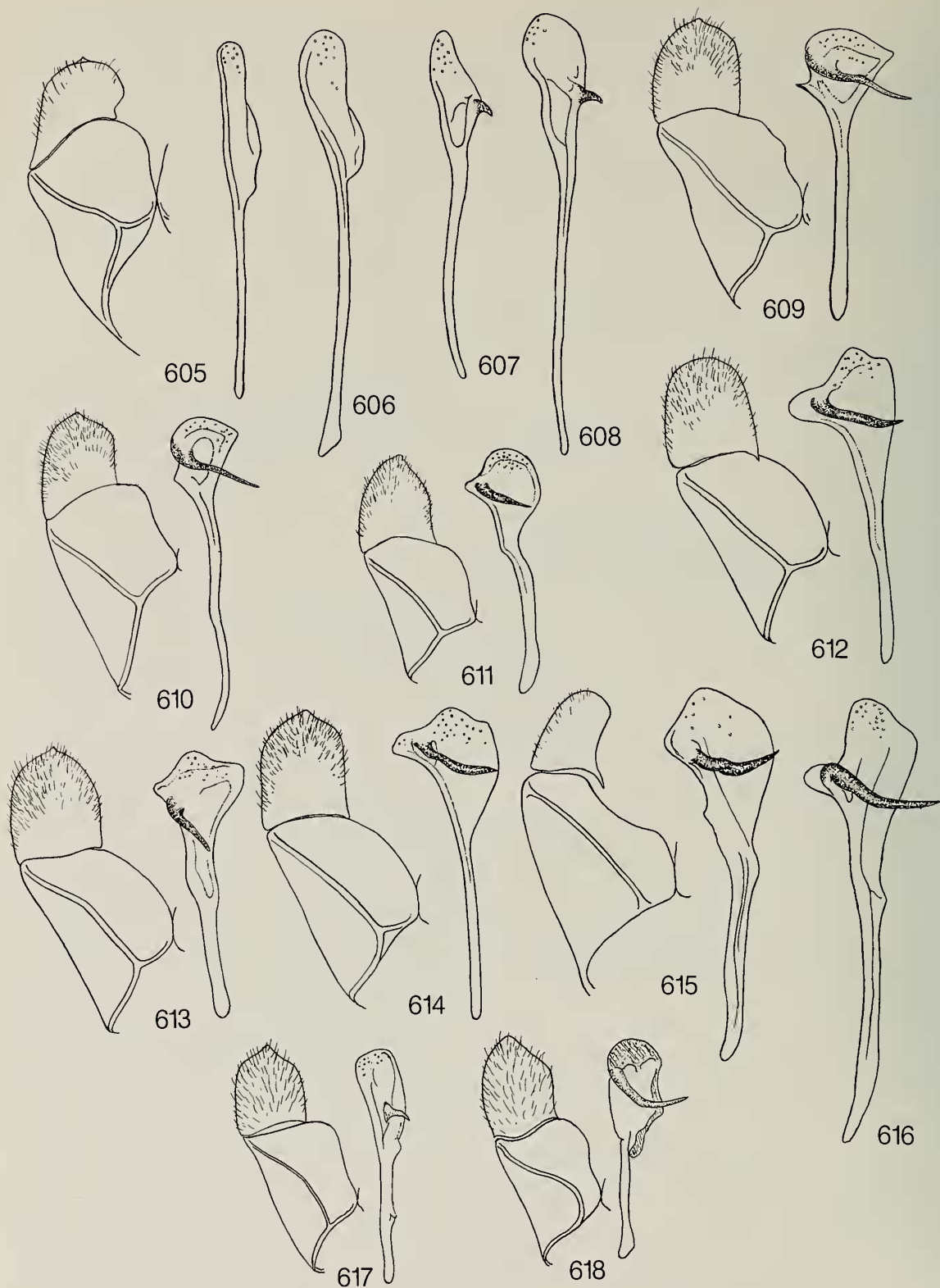
I have seen only the holotype. It is an unusual species and is redescribed here.

Female.—Length 9.5 mm. Antenna black with 1st segment yellow and 2nd segment yellow on inner surface. Head black with supraclypeal area, clypeus, labrum, and palpi pale yellow. Thorax black with lower half of pronotum and entire underthorax orange yellow except for parapteron and upper margin of mesopleuron and mesepimeron; small white spot on extreme posterior corner of each mesonotal lateral lobe. Abdomen black dorsally with 2nd tergum entirely white, laterally and ventrally yellow orange. Legs yellow orange with hindtarsus black. Wings hyaline with intercostal cell and radial cell of forewing mostly blackish infuscated; veins and stigma light brown. Antennal length 1 1/4X head width; flagellum flat, enlarged at apical half. Clypeus truncate; mandibles simple; malar space linear; length of maxillary palpus subequal to eye length, segments of maxillary palpus of uniform width, 3rd segment of labial palpus enlarged; eyes slightly converging below, lower interocular distance shorter than eye length; head from above sharply narrowing behind eyes; without interantennal carina. Forewing with last closed cubital cell longer on radius than on cubitus. Length of hindbasitarsus longer than length of following tarsal segments combined. Sheath slender, without scopae, similar to *iotus*, Fig. 567.

darus Smith, **new species** — Mexico (Nayarit)

Sphacophilus darus Smith.

Female.—Length, 5.5 mm. Black with pronotum, parapteron, upper corners of mesepisternum, upper 1/2 of mesepimeron, and mesonotum except for triangular black mark on prescutum red to orange. Wings uniformly lightly infuscated black, with darker spot below stigma; veins and stigma black. Antenna with 1st segment longer than broad, 2nd segment broader than long, 3rd segment stout, enlarged toward apex; antennal length to head width as 6.0:5.0. Malar space linear; lower interocular distance to eye length as 2.6:2.3; in lateral view, eyes close to posterior margin of head; postocellar area 2X broader than long; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:1.0:1.0. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.3:1.4. Sheath rounded in lateral view, scopae slender, directed posteriorly (Fig. 550). Lancet "weak", lightly sclerotized, serrulae flat, about 21 serrulae; dorsal and ventral halves of lancet different, with annuli separated and directed in different directions on each half (Fig. 595).



Figs. 605-618. *Sphacophilus*, male genitalia. 605, *S. invitus*; 606, *S. crawii*; 607, *S. quixus*; 608, *S. orus*; 609, *S. evansi*; 610, *S. dissensus*; 611, *S. oblatus*; 612, *S. holmus*; 613, *S. barius*; 614, *S. latus*; 615, *S. hamus*; 616, *S. crenus*; 617, *S. centrus*; 618, *S. janzeni*.

Male.— Unknown.

Holotype.— E, "10 mi. east San Blas, Nay., Mex., 5000', June 17, 1963, Scullen and Bolinger, col." (Washington).

Remarks.— The lancet as figured is similar to that of *edus* except for the slight differences in the shape of the serrulae. The antenna of the two species differ, that of *darus* enlarged apically and that of *edus* of uniform width or slightly tapering to a pointed apex.

defius Smith, new species — Brazil (D.F.)

Sphacophilus defius Smith.

Female.— Length, 5.8 mm. Black with pronotum, tegula, and abdominal segments 2-6 orange laterally; apex of forefemur, foretibia, and forebasitarsus whitish. Wings lightly, uniformly blackish infuscated; veins and stigma black. Antennal length to head width as 6.3:4.4. Maxillary palpus shorter than eye length; palpi with segments uniformly slender, none enlarged; lower interocular distance to eye length as 2.5:2.0; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.9:0.8:0.6. Forewing with 3 cubital cells, last closed cell slightly longer on radius than on cubitus. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.6:2.5. Sheath with slender posteriorly projecting scopae, similar to *rallus*, Fig. 545. Lancet long, as in Fig. 604.

Male.— Unknown.

Holotype.— E, "Res. Ecol. IBGE, KM 0 BR 251 - DF, 17 a 18-XI-1978, Malaise-3-100," "Brasilia, D.F. col. Braulio Dias" (Brasilia, IBGE).

Remarks.— This species is separated from others by the long lancet and black coloration with the pronotum, tegula, and lateral areas of abdominal segments 2-6 orange.

dissensus Smith — Mexico (Chihuahua); U.S.A. (Arizona)

**Sphacophilus (Ceocolus) dissensus* Smith 1971b: 568, fig. 64. E. "Indian Pine, Arizona" (Washington, E).— Smith 1979: 26.

I have seen specimens from the following localities in Mexico, all in the state of Chihuahua: Sta. Barabara, 6200'; 3 mi W Sta. Barabara; 5 mi S Villa Matamoros; Cujteco; 5 mi S Terrero.

edus Smith, new species — Panama

Sphacophilus edus Smith.

Female.— Length, 5.5 mm. Black with pronotum, parapteron, upper corner of mesepisternum, upper 1/2 of mesepimeron, and mesonotum except for large black spots on prescutum and scutellum red to orange. Wings lightly infuscated blackish with darker blackish mark below stigma; veins and stigma black. Antenna with 1st segment longer than broad, 2nd segment broader than long, 3rd segment laterally flattened, of equal width to slightly tapering at apex to bluntly pointed tip; antennal length to head width as 6.0:6.5. Malar space linear; eyes large, lower interocular distance to eye length as 2.3:2.3; in lateral view eyes close to posterior margin of head; postocellar area 2X broader than long; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.9:1.1:0.7. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.3:1.3. Sheath rounded in lateral view; scopae slender, directed posteriorly (Fig. 543). Lancet with serrulae flat, about 27 serrulae; upper and lower halves of lancet different, with annuli directed in different directions on each half (Fig. 594).

Male.— Unknown.

Holotype.— E, "Las Cruces, CZ, Pan., II.10.11, Aug. Busck, collector" (Washington).

Paratype.— PANAMA: Frijoles, Canal Zone, Nov. 9, 1930, coll. H. F. Schwarz (1 E). (New York).

Remarks.— The lancet resembles that of *darus* (Fig. 550), but the serrulae differ slightly as figured. The more obvious character is the longer, more slender (apically), and laterally flattened antenna of *edus*.

evansi Smith, new species — Mexico (Jalisco)

Sphacophilus evansi Smith.

Female.— Length, 5.0-6.0 mm. Black with pronotum, tegula, parapteron, and mesonotum red; mesepisternum black or mostly red, metanotum dark red; apex of forefemur and foretibia on outer surfaces whitish. Wings moderately, uniformly infuscated black; veins and stigma black. Antenna with 1st segment longer than broad, 2nd segment broader than long, 3rd segment uniformly wide to rounded apex; antennal length to head width as 5.0:4.5. Malar space equal to 1/2 diameter of front ocellus; lower interocular distance to eye length as 2.8:2.0; postocellar area 2 1/2X broader than long; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:1.0:0.9. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.3:2.0;

subequal to length of 3 following segments. Scopa of sheath slender, directed posteriorly; in lateral view sheath rounded (Fig. 551). Lancet with serrulae low, flat, each with about 8-10 teeth on margin; about 18 serrulae (Fig. 584).

Male.—Length, 4.5-5.0 mm. Black with foretibia whitish. Antennal length to head width as 5.2:4.1. Genitalia as in Fig. 609.

Holotype.—*E*, "Mexico, Jal., Guadalajara, VII-17-20-65, H. E. Evans" (Ithaca).

Paratypes.—MEXICO: Same data as for holotype (6 *E*, 2 *M*); same data except VII-23-28-65 (2 *E*); same data except July 17, 1951 (3 *E*); same data except July 16, 1951 (2 *E*); same data except VII-23-28-65 (2 *E*, 1 *M*); same data except Aug. 2, 1947, B. Malkin (1 *E*) (Ithaca, Washington).

Remarks.—This species is very similar to *dissensus* except for the entirely red mesonotum in *evansi* and differences in the lancet as illustrated.

hamus Smith —U.S.A. (Arizona, New Mexico)

**Sphacophilus* (*Ceocolus*) *hamus* Smith 1971b: 568-569, fig. 32, 63, 102, 103. *E*, *M*. "E. Turkey Crk., Cochise County, Arizona" (Washington, *E*).—Smith 1979: 26.

I have seen specimens from Rodeo, Hidalgo Co., New Mexico. This species is likely to be found in Mexico.

holmus Smith, new species — Costa Rica;
Guatemala; Mexico (Guerrero, Morelos,
Veracruz)

Sphacophilus holmus Smith.

Female.—Length, 5.0-5.3 mm. Antenna and head black, supraclypeal area may be brownish. Thorax and abdomen orange, sometimes mesosternum, mesoprescutum, and apical 2 or 3 terga blackish; sheath black. Legs black, apex of forefemur and foretibia whitish. Wings lightly, uniformly blackish infuscated; veins and stigma black. Antenna with 1st segment longer than broad, 2nd segment broader than long, 3rd segment slender, tapering to pointed apex; antennal length to head width as 8.0:4.0. Malar space linear; clypeus evenly punctate; lower interocular distance to eye length as 2.4:1.8; postocellar area a little more than 2X broader than long; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.9:0.8:0.5. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.4:2.2; subequal to 3 following segments. Sheath slender, at apex slender short scopae diverging laterally; in lateral view triangular (Fig. 559). Serrulae of

lancet flat, each with 10 small teeth on margin, separated from each other by rounded notch; about 19 serrulae; annuli directed posteriorly toward dorsum (Fig. 582).

Male.—Length, 5.0-5.2 mm. Coloration similar to female or thorax usually black with pronotum and tegula more orange. Antennal length to head width as 7.6:3.8. Genitalia as in Fig. 612.

Holotype.—*E*, "Yepocapa, Guatemala, May 1948, H. T. Dalmat, collector" (Washington).

Paratypes.—COSTA RICA: Guanacaste Prov., Santa Rosa National Park, D. H. Janzen, 22-VI-13-VII-1985 (1 *E*). GUATEMALA: Same data as for holotype (1 *E*, 2 *M*). MEXICO: Iguala, Guerrero, 7-21-61, R. and K. Dreisbach (1 *E*, 2 *M*); Huijintlan, Mor., VII-21-61, R. and K. Dreisbach (2 *E*); Minatitlan, Ver., 8/26-IX/1/61, R. and K. Dreisbach (1 *E*); Cordoba, Ver., May 14, 1946, J. and D. Pallister (1 *E*); Guerrero, 2.5 miles NE Cacahuamilpa, July 6, 1974, Clark, Murray, Ashe, Schaffner (1 *E*); Yautepec, Mor., VII-13-1963, F. D. Parker, L. A. Stange (1 *E*). (Champaign, Washington, New York, College Station, Davis).

Remarks.—The unusual shape of the sheath (Fig. 559), lancet (Fig. 582), and coloration will distinguish *holmus*. Color variation is evident. On the thorax the mesoprescutum and mesosternum may sometimes be blackish, and in one specimen the mesopleuron and abdomen are more blackish than orange. This species is near *latus*, but that species has the clypeus impunctate and shining, eyes large, and head more rounded.

invitus (Cresson) — Mexico (Baja California Norte, Colima); U.S.A. (Arizona, California, Colorado, Nevada, New Mexico, Oregon, Utah, Washington)

**Schizocera? invita* Cresson 1880: 3. *E*. "Nev." (Philadelphia, *E*).—Dalla Torre 1894: 313.—Konow 1905a: 29.—Cresson 1916: 5 (holotype).

Sphacophilus invitus: Ross 1951: 16.—Smith 1971b: 554-555, fig. 28, 29, 54, 87, 88.—Smith 1979: 25.

Host: In southern Arizona (Sierra Vista) adults were reared from larvae feeding on *Eriogonum wrightii* (Polygonaceae).

I have seen specimens from the following localities in Mexico: Baja Calif., Sierra San Pedro Martir, trail, La Joya to Oak Pastura; Baja Calif., San Felipe; Manzanillo, Colima. Noel McFarland of Sierra Vista, Arizona, reared this species from the above host. He noted that the larva eats only the pubescence of the epidermal layer from the green (growing) inflores-

cence stems of the plant. There was very rapid emergence. Larvae quit feeding about August 13 and the first adult emerged by August 21.

iotus Smith, new species — Mexico (Guerrero, Morelos, Puebla)

Sphacophilus iotus Smith.

Female.— Length, 7.0-7.5 mm. Black, with pronotum, parapteron, and mesonotum except for blackish lateral margins and sometimes apex of scutellum, red; labrum brownish; tegula may be dark reddish. Legs black with apex of forefemur and foretibia whitish. Wings darkly, uniformly, black infuscated; veins and stigma black. Antenna with 1st segment 2X longer than broad, 2nd segment slightly longer than broad, 3rd segment of uniform width to rounded apex, laterally flattened; antennal length to head width as 7.5:4.9. Malar space less than 1/2 diameter of front ocellus; lower interocular distance to eye length as 2.8:2.5; postocellar area about 1 1/3X broader than long. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.5:2.5. Sheath slender, simple, without scopae; rounded at apex in lateral view (Fig. 567). Lancet long, with about 35 serrulae, those at apex not distinguished from each other; each serrula rather rounded, with 1 or 2 anterior and 4 or 5 posterior subbasal teeth on basal and central serrulae (Fig. 598).

Male.— Unknown.

Holotype.—E, "Mexico, Mor., Cuernavaca, VI 1959, N. L. H. Krauss" (Washington).

Paratypes.—MEXICO: Same data as for holotype (1 E); Gro., Taxco, vii 1959, N. L. H. Krauss (1 E); Puebla, 4.4 mi SW Acatepec, July 9, 1981, Bogar, Schaffner, Friedlander (1 E); Puebla, 13.3 mi. NE Tehuitzingo, July 13-14, 1974, Clark, Murray, Ashe, Schaffner (1 E); Morelos, 6 mi E Cuernavaca, 1 Sept. 1974, W. Hanson, G. Bohart (1 E). (Washington, College Station, Logan).

Remarks.— This species belongs in the group of species with a simple female sheath. It is separated from other species in the preceding key by coloration and lancet features.

janzeni Smith, new species — Costa Rica

Sphacophilus janzeni Smith.

Female.— Length, 5.0-5.5 mm. Antenna and head black; apex of mandible reddish. Thorax black with pronotum (except narrow anterior margin and meson) and mesonotum (except triangular spot on prescutum)

reddish. Legs black with apex of forefemur and outer surface of foretibia whitish. Abdomen black. Wings moderately, uniformly black infuscated, somewhat more hyaline toward apices; veins and stigma black. Antennal length to head width as 5.5:4.3. Malar space linear; lower interocular distance to eye length as 2.6:2.0; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:1.1:0.6. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.5:1.7. Sheath with short, posteriorly projecting scopae; rounded in lateral view (Fig. 561). Lancet long, dorsal and ventral halves of a different pattern (Fig. 603).

Male.— Length, 4.2-4.8 mm. Coloration similar to that of female, with mesepisternum in some specimens brownish. Antennal length to head width as 8.0:4.2; other ratios similar to those of female. Genitalia as in Fig. 618.

Holotype.— E, "Santa Rosa National Park, Guanacaste Province, Costa Rica, D. H. Janzen," "82-SRNP-526" (Washington).

Paratypes.— COSTA RICA: Same data as holotype (3 E, 2 M); same data as holotype except 83-SRNP-970 (4 E, 8 M); same data as holotype except 80-SRNP-137 (2 E, 4 M); same locality, from Malaise traps, 1-22-VI-85 (2 E), 22-VI-13-VII-85 (3 E), 11-V-1-VI-85 (3 E), 28-VII-77 (1 E), 1 XII-77 (1 E), 19-VIII-77 (1 E), 10-XI-77 (1 M), 17-VI-77 (1 E), 15-V-77 (1 E), 7-IX-77 (1 E), 6-VII-77 (1 E), 31-X-77 (1 E), 21-X-77 (1 E), 29-IX-77 (1 E), 3-VI-78 (1 E), 21-VIII-77 (1 E), 27-X-77 (1 E), 9-X-77 (1 E), 3-XII-76 (1 E). (Washington, Townes Coll., London).

Host.— Reared from *Hymenaea courbani* (Leguminosae) in Costa Rica by D.H. Janzen.

Remarks.— The general appearance and ovipositor structure most resemble *edus* (Fig. 594) and *darus* (Fig. 595). The three species are separated in the key to species.

jucunus Smith, new species — Mexico (Morelos, Veracruz)

Sphacophilus jucunus Smith.

Female.— Length, 7.0 mm. Black with mesonotum orange; dark reddish to brown spot on lateral angles of pronotum; apex of forefemur, foretibia and basal 1/4 of mid- and hindtibiae white. Wings darkly, uniformly black infuscated; veins and stigma black. Antennal length to head width as 6.4:5.7. Malar space nearly linear; lower interocular distance to eye length as 2.9:2.4; postocellar area 1 1/3X broader than long; distances between eye and hindocellus, hindocelli, and

hindocelli and posterior margin of head as 1.0:1.0:1.0. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.5:2.4. Sheath slender, simple, without scopae; in lateral view straight above, rounded below and at apex (similar to *iotus*, Fig. 567). Lancet long, serrulae flat with 1 or 2 anterior and about 8 posterior subbasal teeth; about 34 serrulae, those at extreme apex of lancet not differentiated from each other (Fig. 599).

Male.—Unknown.

Holotype.— $\bar{E}$, "Cuernavaca, Mor., Mexico, VI-1945, N. L. H. Krauss" (Washington).

Other specimens.—MEXICO: Minatitlan, Ver., 8/26-IX/1/61, R. and K. Dreisbach (1 $\bar{E}$); Morelos, 7.3 mi. S. Yautepec, 1 Aug. 1969, 4400', George W. Byers (1 $\bar{E}$).

Remarks.—This species is similar to *iotus*, but the black pronotum, white at the base of the mid- and hindtibiae, and more flattened serrulae of the lancet will distinguish *jucunus*.

***latus* Smith, new species** — Costa Rica; Honduras; Mexico (Chihuahua, Guerrero, México, Michoacán, Morelos)

Sphacophilus latus Smith.

Female.—Length, 5.5-6.5 mm. Antenna and head black. Thorax orange with triangular spot on mesoprescutum, mesosternum, and cervical sclerites black; mesepisternum orange, partly black, or all black. Abdomen orange with sheath and sometimes apical 1 or 2 segments black, sometimes mostly black. Legs black, foretibia and tarsus more orange. Wings moderately uniformly infuscated black. Antennal length to head width as 9.0:4.0. Lower interocular distance to eye length as 2.4:1.7; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.8:0.8:0.5; head strongly narrowing behind eyes; malar space subequal to diameter of front ocellus. Clypeus smooth, shining, with very few widely scattered punctures. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.7:2.7. Sheath similar to that of *holmus* (Fig. 559). Lancet similar to that of *holmus* (Fig. 582).

Male.—Length, 5.0-6.0 mm. Color and structure similar to female; mid- and hindtibiae sometimes pale. Antennal length to head width as 8.1:3.5. Genitalia as in Fig. 614.

Holotype.— $\bar{E}$, "Huijintlan, Mor., Mex., VII-21-61, R. and K. Dreisbach" (Champaign).

Paratypes.—COSTA RICA: Guanacaste Prov., Santa Rosa National Park, D. H. Janzen, 13-VII-3-

VIII-1985 (1 $\bar{E}$), 24-VIII-14-IX-1985 (1 $\bar{E}$). HONDURAS: Tegucigalpa, VIII-26-17, F. J. Dyer, No. 29652 (1 $\bar{E}$). MEXICO: Chilpancingo, Guer., 7-24-61, R. and K. Dreisbach (1 $\bar{E}$); Xochicalco, Mor., 7-13-61, 4000', R. and K. Dreisbach (3 $\bar{E}$); Tequesquitengo, Mor., 7-15-61, R. and K. Dreisbach (1 $\bar{E}$); Cotija, Michoacán, IX-14-1965, B. Villegas (2 $\bar{E}$, 6 $\bar{M}$), same but IX-18-1965 (1 $\bar{M}$); Yautepec, Mor., VII-13-1963, F. D. Parker, L. A. Stange (6 $\bar{M}$); 5 mi S Villa Matamoros, Chih., VII-18-1967, R. C. Gardner, C. R. Kovacic, K. Lorenzen (1 $\bar{M}$); Actopan, Mor., 7-13-61, R. and K. Dreisbach (1 $\bar{M}$); Valle de Bravo, Mex., 6500', 3 Aug. 1962, H. E. Evans (1 $\bar{E}$); Morelos, 6 mi E. Cuernavaca, 1 Sept. 1974, W. Hanson, G. Bohart (1 $\bar{E}$) (Champaign, London, Washington, Ithaca, Logan).

Remarks.—This species is similar to *holmus*, and the two are separated in the key to species.

***leucotarsis* (Cameron), new combination** — Guatemala

**Sericocera leucotarsis* Cameron 1883: 47-48, pl. 3, fig. 2. $\bar{E}$ (?). "Guatemala, Cerro Zunil, 4000 ft." (London, $\bar{M}$).—Dalla Torre 1894: 310.

Sericoceros leucotarsis: Konow 1905a: 28.

Cameron stated the female was figured, but he did not state which sex he described. The holotype is a male, BM #1.157. This species is black with the pronotum orange and the mid- and hindtarsi white with the apical two segments black. The wings are darkly, black infuscated. This may be the male of *panitus*. The genitalia were not examined.

***madunus* Smith, new species** — Costa Rica; Guatemala; Mexico (Veracruz)

Sphacophilus madunus Smith.

Female.—Length, 5.0 mm. Antenna and head black, supraclypeal area, clypeus, and labrum brownish. Thorax and abdomen orange, cervical sclerites and apical margin of sheath black. Legs black, some white on femora, or whitish to orange with inner surfaces of foretibia, foretarsus, and mid- and hindtibiae and tarsi black. Wings lightly, uniformly black infuscated; veins and stigma black. Antenna with 1st segment longer than broad, 2nd segment as broad as long; 3rd segment slightly laterally flattened, slightly tapering to apex; antennal length to head width as 4.6:3.7. Malar space less than 1/2 diameter of front ocellus; lower interocular distance to eye length as 2.2:1.7; postocellar area 2 1/2X broader than long; distances between eye and

hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.7:0.5. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.6:1.6. Sheath simple, without scopae, rounded in lateral view (Fig. 560). Serrulae of lancet flat, separated on basal 1/2, with continual row of small teeth and not distinguished from each other on apical 1/2 (Fig. 600).

Male.—Unknown.

Holotype.—E, "Costa Rica, Guanacaste Province, Santa Rosa National Park, D.H. Janzen," "Malaise trap H-4-C, 1-22-VI-1985" (Washington).

Paratypes.—COSTA RICA: Same data as for holotype except dates, 22-VI-13-VII-1985 (1 E), 13-VII-3-VIII-1985 (1 E), 3-24-VIII-1985 (1 E), 16-XI-7-XII-1985 (1 E). GUATEMALA: Esquintia Prov., May 14, 1965, swept ex *Cymbopogon* spp., E. J. Hambleton (1 E) (London, Washington).

Other specimens.—MEXICO: Tepic, Aug., Goldsmith (1 E); Puente Nacional, V.C., VIII-10-61 (1 E, 1 M)..

Remarks.—The sheath and lancet place this species close to *quixus* from southern Arizona, but *madunus* has the thorax entirely orange and the mid- and hindtibiae entirely black. Also, the lancet of *madunus* has the serrulae more distinctly differentiated on the basal half and a greater number of serrulae than does *quixus* (Fig. 575). The "other specimens" from Mexico have the lower interocular distance nearly equal to the eye length and the hindbasitarsus slightly longer than the length of the remaining tarsal segments combined, but the color and lancet structure are the same.

masoni Smith, new species — Mexico (Durango)

Sphacophilus masoni Smith.

Female.—Length, 6.0 mm. Black with pronotum, tegula, parapteron, upper 1/2 of mesepisternum, and mesonotum except for black on prescutum, red; apex of forefemur and outer surface of foretibia whitish. Wings uniformly, moderately infuscated black; veins and stigma black. Antenna with 1st segment longer than broad; 2nd segment broader than long; 3rd segment of uniform thickness, bluntly rounded at apex; antennal length to head width as 5.8:4.7. Malar space less than 1/2 diameter of front ocellus; lower interocular distance to eye length as 2.7:2.0; postocellar area 2 1/2X broader than long; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.8:0.8:0.8. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.7:2.5, subequal to length of 3 following segments.

Sheath round in lateral view, with slender scopae directed posteriorly (Fig. 548). Serrulae of lancet flat, each with 8-10 small subbasal teeth on margin; about 23 serrulae, each distinct; annuli directed posteriorly toward dorsum (Fig. 593).

Male.—Unknown.

Holotype.—E, "Mex., Dgo., 7 mi. W. Durango, 7000', 22 July 1964, W. R. M. Mason" (Ottawa).

Remarks.—This species is close to *evansi* and *dissensus* but can be separated from each by the lancet, the annuli of which are directed forward instead of backward in *evansi* (Fig. 584) and the flatter serrulae in *dissensus* (Fig. 591). The black mark on the mesoprescutum will help distinguish *masoni* from *evansi*.

memmonius Smith — U.S.A. (Arizona, California)

**Sphacophilus* (*Ceocolus*) *memmonius* Smith 1971b: 570, 572, fig. 33, 62. E, "12.2 mi. W. Glamis, Algodones sand dunes, Imperial Co., California" (Washington, E).—Smith 1979: 26.

I have seen additional records from San Diego and Riverside counties in California and from 5 mi E Tacna, Yuma Co., Arizona. This species is likely to occur in Mexico.

moniliatus (Konow) — Argentina (Entre Rios)

**Schizoceros moniliatus* Konow 1899b: 404. E, "Argentinian resp. (Parana)" (Eberswalde, E).—Oehlke and Wudowenz 1984: 396 (holotype).

Sericoceros moniliatus: Konow 1905a: 29.—Jørgensen 1913: 251.

Sphacophilus moniliatus: Smith 1981: 287.

The holotype is labeled "Parana, Mrz." This is the only specimen I have seen. It has broad but cylindrical scopae on the sheath, similar to the sheaths of *crawii* and *invitus* (Fig. 565).

nuntius Smith, new species — Mexico (Guerrero, Morelos, Oaxaca)

Sphacophilus nuntius Smith.

Female.—Length, 7.0 mm. Antenna and head black; palpi white. Thorax mostly orange red with cervical sclerites, mesosternum, and most of mesoprescutum and mesonotal lateral lobes black. Abdomen orange with basal sterna and middle of terga to apex and sheath blackish. Legs white to orange, hindtibia black with

basal 1/5 white. Wings subhyaline, veins and stigma black. Antenna with 1st segment longer than broad; 2nd segment slightly longer than broad; 3rd segment slightly laterally flattened, mostly of uniform thickness; antennal length to head width as 7.8:4.5. Malar space linear; lower interocular distance to eye length as 2.6:2.3; postocellar area nearly 3X broader than long; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.8:0.6:0.6. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.8:2.6. Sheath simple, without scopae; in lateral view rounded at apex (similar to *iotus*, Fig. 567). Lancet long, serrulae flat, with about 25 distinct serrulae, apex of lancet without serrulae separated from each other (Fig. 601).

Male.—Unknown.

Holotype.—E, "Cuernavaca, X-44, N. L. H. Krauss," "Mexico, Morelos" (Washington).

Paratypes.—MEXICO: Oaxaca, Crawford (2 E); Morelos, 7.3 mi. S. Yautepec, 2 Aug. 1969, 4400', George W. Byers (1 E); Amula, Guerrero, 6000 ft., Aug., H. H. Smith (1 E). (Washington, Lawrence, London).

Remarks.—The long antennae, coloration, and flat serrulae of the lancet will separate *nuntius* from other *Sphacophilus* species with a simple sheath.

oblatus Smith — Mexico (Sonora); U.S.A. (Arizona; New Mexico; Texas)

**Sphacophilus* (*Ceocolus*) *oblatus* Smith 1971b: 576, 578, fig. 34, 35, 65. E. "Bear Valley, Arizona, S. slope Tumacacori Mt., 4000', sycamore-oak-ash in valley" (Washington, E).—Smith 1979: 26.

I have seen additional specimens from Rodeo, New Mexico; Bastrop, Fayette Co., Texas; 6 mi S Nogales, ca. 4000', Sonora; and Alamos, Sonora.

odontus Smith, new species — Mexico (Guerrero, Michoacán, Morelos)

Sphacophilus odontus Smith.

Female.—Length, 7.5 mm. Black with pronotum and basal 5 sterna orange; basal 2 terga brownish; apex of coxae, trochanters, and foretibia whitish. Wings uniformly infuscated black; veins and stigma black. Antenna with 1st segment longer than broad; 2nd segment as long as broad; 3rd segment slightly laterally flattened, of uniform thickness; antennal length to head width as 9.5:5.5. Malar space linear; lower interocular distance to eye length as 3.3:2.8; postocellar area 2X

broader than long; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:0.8:1.0. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.8:2.8. Sheath simple, without scopae; in lateral view rounded at apex (Fig. 568). Lancet with serrulae low, rounded, each with about 6 coarse subbasal teeth on margin; apical portion without distinct serrulae; about 21 distinct serrulae present (Fig. 596).

Male.—Unknown.

Holotype.—E, "Mex., Mor., Cuernavaca, viii, 1959, N. Krauss" (Washington).

Paratypes.—MEXICO: 6 mi NW Quiroga, Mich., VII-11-1963, F. D. Parker, L. A. Stange (1 E); Xucumanatlan, Guerrero, 7000 ft., July, H. H. Smith (1 E). (Davis, London).

Remarks.—From other species with a simple sheath, *odontus* is separated by its mostly black coloration with the pronotum and sterna orange and by the shape of the serrulae of the lancet, as in Fig. 596.

orthius Smith — U.S.A. (Arizona)

**Sphacophilus* (*Litocolus*) *orthius* Smith 1971b: 558-559, fig. 25, 59. E. "Canelo, Arizona" (Washington, E).—Smith 1979: 25.

This species will probably be found in Mexico.

orus Smith — Mexico (Jalisco, Veracruz); U.S.A. (Arizona)

**Sphacophilus* (*Litocolus*) *orus* Smith 1971b: 559-560, fig. 26, 27, 60, 94. E, M. "Sabino Canyon, Arizona" (Washington, E).—Smith 1979: 25.

I have seen specimens from Rio Santiago, 15 mi. N. Guadalajara, Jalisco, and Puente Nation, Veracruz.

panitus Smith, new species — Guatemala

Sphacophilus panitus Smith.

Female.—Length, 5.5 mm. Antenna and head black. Thorax black with pronotum orange and margins of mesoprescutum and lateral lobes of mesonotum dark reddish. Abdomen black. Legs black with apical halves of coxae, trochanters, extreme bases of femora, and each basitarsus white, 2nd tarsal segments whitish but dark at apices. Wings very lightly, uniformly black infuscated; veins and stigma black. Antenna with 1st segment longer than broad; 2nd segment very slightly longer than broad; 3rd segment laterally flattened, of nearly uniform width, very slightly tapering toward

apex; antennal length to head width as 7.0:4.3. Malar space nearly linear; lower interocular distance to eye length as 2.3:2.0; postocellar area little more than 2X broader than long; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.7:0.6. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.1:2.0. Sheath simple, without scopae; in lateral view rounded at apex (similar to *iotus*, Fig. 567). Lancet with serrulae low, pointed at apices, each with 1 or 2 anterior and 5 or 6 posterior subbasal teeth; about 26 serrulae (Fig. 597).

Male.—Unknown.

Holotype.—E, "Guatemala City, Guatemala, 7-1923, E. G. Smyth," "Chittenden No. 11b78" (Washington).

Remarks.—The lancet of *panitus* differs from most other *Sphacophilus* with a simple sheath in that each serrula is distinct. Also, the black coloration with the pronotum orange and much of the coxae and basitarsi white will help to distinguish this species from congeners. This may be female of *leucotarsis*.

partitus Smith — U.S.A. (Arizona)

**Sphacophilus (Litocolus) partitus* Smith 1971b: 560-561, fig. 61. E. "S. Fork Cave Creek, Cochise Co., Chiricahua Mts., Arizona, 5400" (Washington, E).— Smith 1979: 25.

This species will probably be found in Mexico.

peratus (Konow) — Brazil (Pará)

**Gynmia perata* Konow 1906b: 241-242. E. "Brasilien (Obidos)" (Eberswalde, E).— Oehlke and Wudowenz 1984: 403 (holotype).

Sphacophilus peratus: Smith 1981: 287.

I have seen only the holotype. It is the only predominantly orange species known from South America.

piceiventris (Klug), new combination — Brazil

**Hylotoma piceiventris* Klug 1834: 250-251. E. "Brasilien" (Berlin, E).— Kriechbaumer 1884: 296.

Sericocera piceiventris: Norton 1867: 54.

Gymnia piceiventris: Kirby 1882: 43.— Dalla Torre 1894: 318.— Konow 1905a: 27.

I have seen only the holotype.

quixus Smith — U.S.A. (Arizona, New Mexico, Texas)

**Sphacophilus (Litocolus) quixus* Smith 1971b: 561-562, fig. 57, 93. E, M. "Tucson, Arizona" (Washington, E) (host a).— Smith 1979: 25 (host a).

Host: a) Adults were collected on morning glory, probably *Ipomoea* sp.

I have seen specimens from Rodeo and Hatch, New Mexico. This species undoubtedly occurs in Mexico.

rallus Smith — U.S.A. (Arizona)

**Sphacophilus (Ceocolus) rallus* Smith 1971b: 578, 580, fig. 68. E. "Marble Peak, north slope Santa Catalina Mts., Pima Co., Arizona" (Washington, E).— Smith 1979: 26.

This species probably occurs in Mexico.

scutinus Smith, new species — Mexico (Durango, Sinaloa)

Sphacophilus scutinus Smith.

Female.—Length, 6.5 mm. Black, only abdomen red with apical segment, longitudinal medial line on dorsum, and sheath black. Apex of forefemur and outer surface of foretibia whitish. Wings darkly uniformly black infuscated; veins and stigma black. Antenna with 1st segment longer than broad; 2nd segment broader than long; 3rd segment tapering to pointed apex; antennal length to head width as 10.0:5.1. Malar space equal to 1/2 diameter of front ocellus; lower interocular distance to eye length as 3.0:2.2; postocellar area about 3X broader than long; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:1.0:0.6. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.3:3.0. Sheath short, round at apex in lateral view; scopae short and blunt, directed posteriorly (Fig. 562). Serrulae of lancet flat, each without anterior and with 4 or 5 posterior subbasal teeth; about 19 serrulae (Fig. 587).

Male.—Unknown.

Holotype.—E, "8 mi. W. El Palmito, Sin., Mexico, 6500', 4-VIII-1964, J. E. H. Martin" (Ottawa).

Paratypes.—MEXICO: 6.5 mi. E. Potrerillos, Sinaloa, VIII-21-1964, M. E. Irwin (1 E); 10 mi. W. El Salto, Dgo., 9000', 30-VI-1964, J. E. H. Martin (1 E). (Ottawa, Riverside).

Remarks.—The entirely black thorax and mostly red abdomen will help to separate *scutinus*, as well as

the long antennae and short blunt scopae of the sheath. The lancet resembles that of *rallus* (Fig. 579), but *rallus* has slenderer, longer scopae on the sheath (Fig. 545).

tenuous Smith, new species — Mexico (Chihuahua); U.S.A. (Arizona)

Sphacophilus tenuous Smith.

Female.—Length, 7.0 mm. Orange with antenna, broad stripe on head from near posterior end of postocellar area extending between antennae to labrum (except for orange spot above antennae), legs except for coxae, and sheath black. Wings uniformly, darkly black infuscated; veins and stigma black. Antenna with 1st segment longer than broad; 2nd segment broader than long; 3rd segment laterally flattened, tapering to pointed apex; antennal length to head width as 6.3:5.7. Malar space less than 1/2 diameter of front ocellus; lower interocular distance to eye length as 3.2:2.3; postocellar area 2 1/2X broader than long; head broadened behind eyes; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.2:1.0:1.0. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.4:2.3, subequal in length to 2 following segments. Sheath rounded in lateral view; scopae slender, directed posteriorly (Fig. 569). Lancet with serrulae low, rounded at apices with no anterior and 3 or 4 fine posterior subbasal teeth; about 21 serrulae (Fig. 589).

Male.—Unknown.

Holotype.—E, "2 mi. W. Sonoita, Ariz., Jul. 26, 1962, Werner, Bequaert, Noller" (Washington).

Other specimens.—MEXICO: Chihuahua, La Campana, 8 Sept. 1973, W. J. Hanson, B. A. Haws (1 E) (Logan).

Remarks.—The mostly reddish color of the head places *tenuous* near *argutus* and *crenus*, but in *tenuous* there is a black stripe down the center of the head, the legs except for the coxae are black, and the lancet differs as shown in Figs. 586, 588, 590. *Sphacophilus hamus* from Mexico is also similar, but it has a black head and much deeper serrulae on the lancet (Fig. 588).

triangularis Smith — Mexico (Nuevo Leon); U.S.A. (Arizona)

**Sphacophilus* (*Ceocolus*) *triangularis* Smith 1971b: 580, fig. 30, 31, 67. E, "Douglas, Arizona" (Washington, E).—Smith 1979: 26.

I have seen specimens from Monterrey, Nuevo Leon.

truncatus (Cameron), new combination — Guatemala

**Sericocera truncata* Cameron 1883: 49-50. E, M. "Guatemala, Duenas E, San Geronimo M" (London, E).—Dalla Torre 1894: 310.

Sericoceros truncatus: Konow 1905a: 28.

The lectotype, here designated, is the female specimen set aside as the type in London, BM #1.158. It is labeled "B.C.A. Hymen. I. *Sericoceros truncatus* Cam," "Duenas, Guatemala, G.C. Champion." It is entirely black with only the outer surface of the foretibia whitish. The wings are uniformly, darkly black infuscated. The sheath is similar to that of *holmus*, Fig. 559.

usinus Smith, new species — Mexico (Chiapas)

Sphacophilus usinus Smith.

Female.—Length, 6.0 mm. Black with mesonotum except for posterior margin of scutellum red; apex of forefemur and outer surface of foretibia whitish. Wings moderately, uniformly black infuscated; veins and stigma black. Antenna with 1st segment longer than broad; 2nd segment as long as broad; 3rd segment slightly tapering to apex; antennal length to head width as 6.3:4.6. Malar space slightly less than diameter of front ocellus; lower interocular distance to eye length as 3.0:2.0; postocellar area 1 1/2X broader than long; distances between eye and hindocellus, hindocelli, hindocelli and posterior margin of head as 1.0:0.9:0.9. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.0:2.3. Sheath in lateral view narrowing to rounded apex; scopae slender, long, directed posterolaterally (Fig. 547). Lancet with serrulae flat, each with no anterior and 6-8 posterior subbasal teeth; about 22 serrulae (Fig. 592).

Male.—Unknown.

Holotype.—E, "Mexico, Chis., 20-25 mi. N. Huixtla, 3000', 4. VI. 1969, B. V. Peterson" (Ottawa).

Remarks.—The combination of the black coloration with only the mesonotum red and characters of the lancet will distinguish *usinus* from other species of *Sphacophilus* that have scopae on the sheath.

Genus **TANYMELES** Konow

Gymnia Spinola 1851: 23. Preoccupied by *Gymnia* Brullé 1846. Type species: *Gymnia apicalis* Spinola. Desig. by Rohwer 1911a.

Tanymeles Konow 1906b: 244. Type species: *Tanymeles hilarulus* Konow. Monotypic.

Antenna (Fig. 622) with 1st and 2nd segments each longer than broad; 3rd segment of female antenna laterally flattened, tapering to pointed apex; antennal length usually not more than 1 1/2X head width. Clypeus truncate; malar space linear; eyes large, slightly converging below, lower interocular distance less than eye length (Fig. 620) (except a few males); low, short, sharp interantennal carina present, sometimes extending onto supraclypeal area below; head from above sharply narrowing behind eyes (Fig. 621); palpi (Fig. 624) long, maxillary palpus longer than eye length, 3rd segment of labial palpus enlarged, maxillary palpus without enlarged segments; left mandible simple, right mandible with basal tooth (Fig. 623). Forewing (Fig. 619) with radial cell open; costa swollen, as broad as or broader than intercostal area; 3 cubital cells, the last closed cell longer on radius than on cubitus; distance

between veins M and Rs+M on Sc+R equal to half or more length of vein M; small basal anal cell present. Hindwing (Fig. 619) without anal cell. Length of hindbasitarsus longer than length of remaining tarsal segments combined; tarsal claw simple.

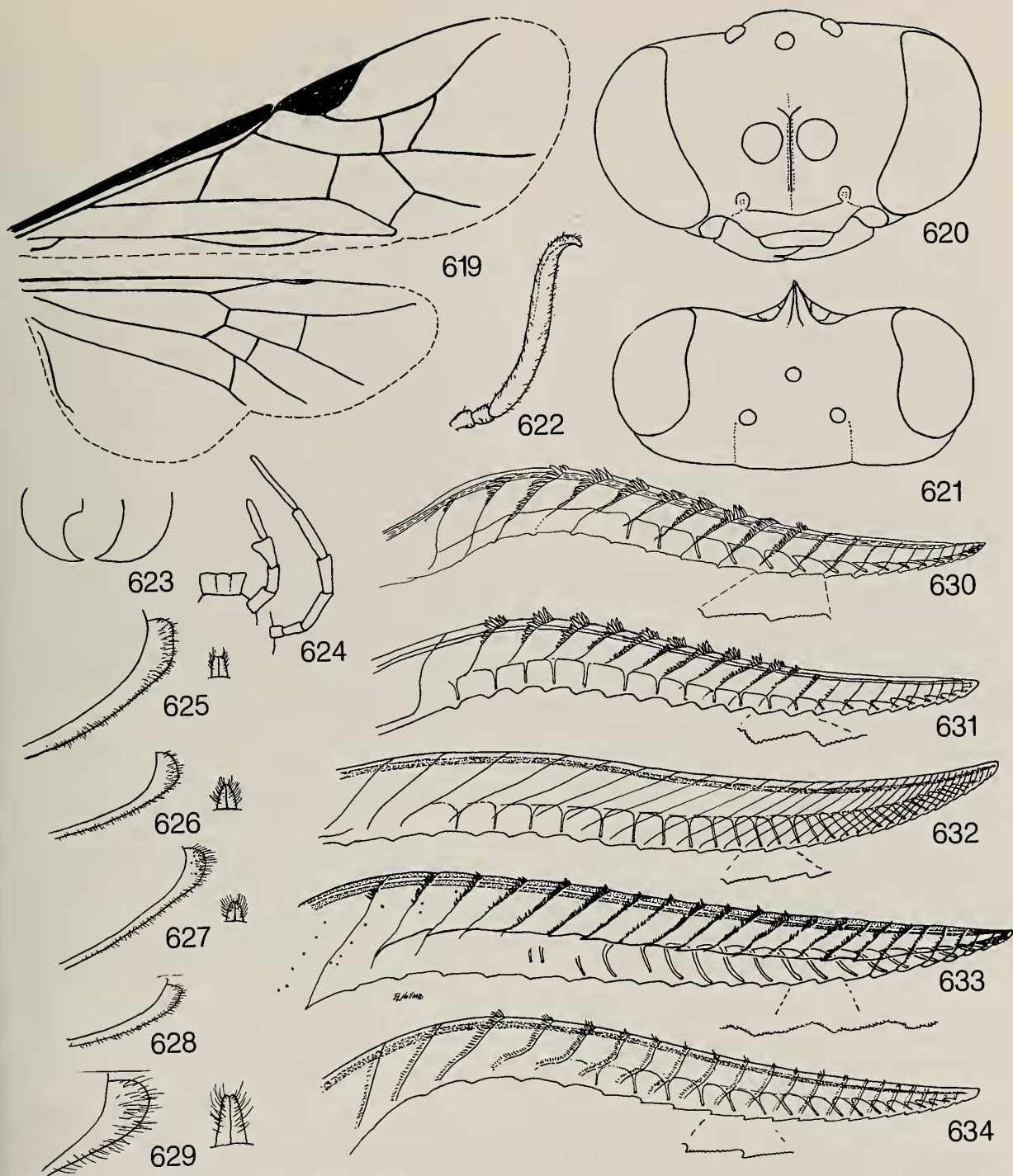
These are mostly small species, about 6 mm long or less, and are recognized by the open radial cell of the forewing, lack of an anal cell in the hindwing, short and sharp interantennal carina, usually large eyes which converge below with the lower interocular distance less than the eye length, and the flattened, tapering antennal flagellum of the female. The head is usually smooth and rather shining and lacks deep furrows or pits. The general habitus is very similar for all species, the female lancets of all are very uniform in structure (Figs. 630-640), and the female sheaths are usually slender and bladelike (Figs. 625-629).

Malaise (1937a, 1955) gave keys to species. The treatment here expands on Malaise's work, but, because of their small size, many more will probably be discovered. Most species are known from one or a few specimens. Representatives have been found from Venezuela to Bolivia and southeastern Brazil. Hosts and biologies are not known.

KEY TO SPECIES

1. Forewing yellow and black, black at base and apex, or black only at apex 2
- Forewing uniformly hyaline or black, stigma may be yellowish and small area around stigma may be yellowish . . . 4
2. Forewing yellow with black at base and apex (sheath as in Fig. 625; lancet as in Fig. 632) *fasciatus*, new species
- Forewing yellow with black only at apex 3
3. Thorax entirely orange; lancet as in Fig. 633 *suritus*, new species
- Thorax orange with prescutum and mesonotal lateral lobes black; lancet as in Fig. 634 (sheath as in Fig. 626) *rasitus*, new species
4. Head orange, at most with ocellar and/or postocellar area black 5
- Head mostly black, at most with clypeus, mouthparts, supraclypeal area, and small spot on frons whitish to yellow 8
5. Thorax orange with mesonotum and metanotum black (other than thorax, yellow orange with 2nd and 3rd antennal segments, ocellar and postocellar areas, apical 1-2 terga, sheath, apical 1/3 of hindtibia, and hindtarsus black; sheath similar to *rasitus*, Fig. 626) *galumnatus* (Konow)
- Thorax orange 6
6. Forewing blackish in female but stigma yellow and area near stigma yellowish to hyaline (length 5.0-6.0 mm) *urcacensis* (Cameron)
- Forewing darkly, uniformly black infuscated, veins and stigma black 7
7. Interocellar area orange; postocellar area 3X broader than long; length 4.0-5.0 mm; lancet as in Fig. 635 (sheath as in Fig. 628) *tosus*, new species
- Interocellar area black; postocellar area 2X broader than long; length 5.8-6.2 mm; lancet as in Fig. 636 *medeus*, new species
8. Dorsum of abdomen black, venter and lateral downturned areas of terga orange (thorax orange; lancet as in Fig. 637) *critus*, new species
- Abdomen black or orange with apex black 9

9. Abdomen mostly orange, basal plates and apical 2 or 3 segments and sheath may be black **10**
 — Abdomen black, pale areas sometimes on lateral margins, at base, or on central terga **16**
10. Legs and thorax black (lower interocular distance slightly longer than eye length; female sheath with outwardly projecting scopae unlike most *Tanymeles*, similar to Fig. 543) *segregex* (Konow)
 — Legs partly orange, at least coxae and femora; thorax usually with considerable orange, or black with mesosternum orange **11**
11. Thorax black, or black with mesosternum orange (lancet as in Fig. 630). *hypoleucus* (Klug)
 — Thorax more orange, especially on pronotum and mesonotum **12**
12. Thorax entirely orange, may have black spot laterally on each mesonotal lateral lobe **13**
 — Underthorax and/or parts of mesonotum black **14**
13. Mid- and hindtibiae black, pale only at extreme bases; black spot laterally on mesonotal lateral lobes; sheath similar to *inconspicuus*, Fig. 629 *hilarulus* Konow
 — Apical 1/3 or less of mid- and hindtibiae black; mesonotum orange; sheath similar to *tosus*, Fig. 628 (lancet as in Fig. 638; male genitalia as in Fig. 642) *rossi*, new species
14. Mesopleuron and mesosternum black; mesonotum with prescutum, anterior halves of lateral lobes, and spot on scutellum black (legs orange with apical 4 segments for foretarsus, mid- and hindtarsi, and apical 1/3 hindtibiae black) *amictorianus* (Konow)
 — Underthorax orange yellow; mesonotum with prescutum and/or lateral lobes black, margins of lobes may be orange **15**
15. Antenna black (legs orange with apical 1/5 hindtibia, hindtarsus central 3 segments of midtarsus, and apical 1 or 2 segments of foretarsus black; lancet as in Fig. 639) *bequearti*, new species
 — Antenna with first 2 segments orange, flagellum pale becoming blackish toward apex *apicalis* (Spinola)
16. Legs, especially femora, mostly black; thorax mostly black with pronotum and some contiguous parts or most of mesonotum orange to red **17**
 — Legs mostly orange yellow, at least all femora orange yellow; thorax mostly orange yellow with parts of mesonotum and sometimes mesosternum and lower portion of mesopleuron black **20**
17. Black, basal 1 or 2 sterna may be orange (lower interocular distance slightly greater than eye length . . . *nigritus* (Klug)
 — Pronotum and usually part of mesonotum orange **18**
18. Mesonotum reddish with spot on prescutum black; tegula black (legs black, only white on forefemur; sheath similar to *inconspicuus*, Fig. 629) *compressicornis* (Klug)
 — Mesonotum orange yellow with most of prescutum and scutellum black; tegula orange yellow **19**
19. Basal 1/3 to 1/2 of mid- and hindtibiae white; head black (forelegs absent on holotype; one other specimen has apex of forefemur and foretibia except black line on inner surface white) *mesomelus* (Klug)
 — Tibiae black; supraclypeal area whitish (foreleg mostly light orange in female; male with base of tibiae pale; lancet as in Fig. 631; male genitalia as in Fig. 641; sheath as in Fig. 629; this and *mesomela* are possibly the same; more specimens are needed to evaluate the two) *inconspicuus* (Kirby)
20. Legs whitish, only apical 1 or 2 segments of each tarsus blackish (abdomen with basal plates and terga whitish at center) *praecox* (Klug)
 — Legs with at least apex of hindtibia and hindtarsus black **21**
21. Mesoscutellum orange (mesonotum with prescutum and most of anterior 2/3 of lateral lobes black; mesosternum and lower 1/2 of mesopleuron black; upper 1/2 of mesopleuron light orange; lancet as in Fig. 640; sheath as in Fig. 627; male genitalia as in Fig. 643) *wizunus*, new species
 — Mesoscutellum black **22**
22. Mesonotum orange with scutellum and posterior halves of lateral lobes black; abdomen black with basal sterna orange; femora orange yellow *alternus* (Konow)
 — Mesonotum orange with prescutum and scutellum black; abdomen black above, mostly orange yellow below except for black apical segment and hypandrium; femora mostly black *socius* (Konow)



Figs. 619-634. *Tanymeles*. 619, Forewing and hindwing of *T. inconspicuus*. 620, Front view of head of *T. hypoleucus*. 621, Dorsal view of head of *T. hypoleucus*. 622, Female antenna of *T. inconspicuus*. 623, Mandibles of *T. hypoleucus*. 624, Palpi of *T. hypoleucus*. Female sheaths of 625, *T. fasciatus*; 626, *T. rasitus*; 627, *T. wizunus*; 628, *T. tosus*; 629, *T. inconspicuus*. Female lancets of 630, *T. hypoleucus*; 631, *T. inconspicuus*; 632, *T. fasciatus*; 633, *T. suritus*; 634, *T. rasitus*.

SPECIES

alternus (Konow), new combination — Brazil (Pará)

**Gymnia alternus* Konow 1906b: 241. F. "Brasília (Itaituba)" (Eberswalde, F).— Oehlke and Wudowenz 1984: 365 (holotype).

I have seen only the holotype: 6.2 mm long; antenna and head black, palpi orange; thorax orange with mesepisternum, mesosternum, posterior corner of mesoprescutum, posterior half of mesonotal lateral lobes, mesoscutellum, and metanotum black; abdomen black with basal sterna orange; legs orange yellow with apical halves of fore- and midtibiae, apical third of hindtibia, and tarsi black; wings lightly infuscated, intercostal area and spot at apex of radial cell darker; veins and stigma black.

amictorianus (Konow), new combination — Peru

**Gymnia amictoriana* Konow 1906b: 242-243. F. "Peru (Pachitea)" (Eberswalde, F).— Oehlke and Wudowenz 1984: 366 (holotype).

I have seen only the holotype: 6.0 mm long; antennae missing except 1st segment pale orange; head black with area below antennae, palpi, and small spot above and between antennae whitish to orange; thorax orange with mesopleuron, mesosternum, mesoprescutum, and anterior half of mesonotal lateral lobes black, mesoscutellum infuscated; abdomen orange with apical 2-3 segments and sheath black; legs orange with apical third of hindtibia, apical 4 segments of foretarsus, and mid- and hindtarsi black; wings uniformly black infuscated; veins and stigma black.

apicalis (Spinola) — Brazil (Amazonas, Pará)

**Gymnia apicalis* Spinola 1851: 7. M. (Para) (Torino, M).— Dalla Torre 1894: 317.— Konow 1905a: 27.
Tanymeles apicalis: Malaise 1955: 113 (syn.: *urcacensis* Cameron; *analis* Malaise).

According to Malaise, the head is orange in the female (*urcacensis*) and black in the male (*apicalis*), and he synonymized the two. I do not believe he had enough specimens to make a definite association and have separated the two species here. The male holotype is 6.0 mm long; antenna with 1st and 2nd segments yellow, 3rd segment infuscate to blacker toward apex; head black with supraclypeal area, clypeus, and mouthparts yellow; thorax orange with large black spots on mesoprescutum and mesonotal lateral lobes; abdomen orange with apical 2-3 segments black; legs orange

with apex of hindtibia narrowly blackish (tarsi missing). I have seen one specimen from Santarem, Brazil.

bequaerti Smith, new species — Brazil (Acre)

Tanymeles bequaerti Smith.

Female.— Length, 5.5-6.0 mm. Antenna black. Head black with supraclypeal area, clypeus, labrum, mandibles, and palpi light orange. Thorax orange with mesoprescutum and most of mesonotal lateral lobes except for posterior margins black. Legs orange with apical 1/5 hindtibia, hindtarsus, central 3 segments of midtarsus, and apical 1 or 2 segments of foretarsus black. Abdomen orange with apical 3 or 4 segments and sheath black. Wings hyaline to very lightly uniformly infuscated black, a little darker at apices; veins and stigma black. Antennal length to head width as 5.8:5.2; 1st segment subequal in length to 2nd segment, 3rd segment laterally compressed, tapering to apex. Postocellar area 2X broader than long; lower interocular distance to eye length as 2.5:3.2; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:1.0:0.9. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.3:1.8. Sheath slender, without scopae, in lateral view rounded at apex (as *rasitus*, Fig. 626). Lancet as in Fig. 639.

Male.— Unknown.

Holotype.— F, "Rio Branco, Amazonas, San Alberto, 27-VIII-24, J. Bequaert collection" (Cambridge).

Paratypes.— BRAZIL: same data as for holotype, but without San Alberto, and different date, 28-VIII-24 (3 F) (Cambridge).

Remarks.— *Tanymeles amictorinus* from Peru resembles *bequaerti* but the former has only the apical two abdominal segments black and has the mesopleuron, mesosternum, and most of the midtarsus black. Most of the antennae are missing in the holotype of *amictorinus*, but first antennal segment is white.

compressicornis (Klug) — Brazil (D.F., São Paulo ?)

**Hylotoma* (*Schizocera*) *compressicornis* Klug 1834: 249-250. F. "Brasilien" (Berlin, F).— Kriechbaumer 1884: 295.

Sericocera compressicornis: Norton 1867: 53.

Gymnia compressicornis: Kirby 1882: 42 (Santarem).— Dalla Torre 1894: 318.

Sericoceros compressicornis: Konow 1905a: 28.

Tanymeles compressicornis: Malaise 1955: 112 ("leg Olfers and accordingly possibly from Sao Paulo?").

The head of the holotype is missing. Kirby's identification of a specimen from Santarem is questionable. I did not see his specimen. I saw one specimen from D.F., Brazil. The holotype is black with whitish on the outer surface of the forefemur and with the pronotum, mesonotal lateral lobes, and mesoscutellum red; wings lightly, uniformly black infuscated. The antennae and head of the specimen from D.F., Brazil, are black.

critus Smith, new species — Brazil (Rondônia)

Tanymeles critus Smith.

Female.—Length, 4.5 mm. Antenna and head black; spot on center of supraclypeal area, clypeus, labrum, mandible except apex, and palpi white. Thorax orange. Abdomen black above, lateral downturned portion of terga and sterna orange. Legs orange with tibiae (except whitish bases) and tarsi black; foretibia paler, blackish infuscated only at apex and on outer surface; sheath black. Wings uniformly moderately blackish infuscated; veins and stigma black. Antenna stout, antennal length subequal to head width. Distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.5:1.0:0.4; lower interocular distance to eye length as 1.8:2.5. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.2:1.3. Sheath slender, as in *rasitus* (Fig. 626). Lancet as in Fig 637.

Male.—Unknown.

Holotype.—E, "Brazil, Rondonia: Rio Guapore opposite mouth of Rio Baures (Bol.), September 26-29, 1964, Bousemand and Lussenhop" (New York).

Paratype.—BRAZIL: same data as for holotype (1 E) (New York).

Remarks.—This is a small species, recognized by the orange thorax, orange abdomen with a black dorsum, and orange legs with the tibiae, except for whitish bases, and tarsi black.

fasciatus Smith, new species — Venezuela

Tanymeles fasciatus Smith.

Female.—Length, 9.0 mm. Antenna whitish to light orange with apical part of 3rd segment becoming blackish. Head black with supraclypeal area, clypeus, labrum, mandibles, and palpi light orange. Thorax orange with mesoprescutum and mesonotal lateral lobes except for posterior margins black. Legs light orange or yellowish, only extreme apex of hindtibia and entire hindtarsus black. Abdomen orange with apical 2 segments and sheath black. Forewing yellowish at center, infuscated black at base and apex; veins yellow in yellowish part, black in black part; stigma yellow.

Antennal length $1\frac{1}{5}X$ head width, as 8.5:7.2; 1st segment subequal in length to 2nd segment; 3rd segment laterally flattened, not tapering but of uniform width to bluntly rounded apex. Lower interocular distance to eye length as 2.0:3.7; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:1.0:0.9. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.8:2.5. Sheath simple, without scopae, slender, in lateral view rounded (Fig. 625). Lancet as in Fig. 632.

Male.—Unknown.

Holotype.—E, "Venezuela-Zulia, El Tucuco, 420 m., 21-27-V-1971, J. Rosales, J. Salcedo, A. Ramirez, Venezuela Inst. Zool. Agricola Fac. Agronomia Univ. Central" (Maracay).

Remarks.—This is an unusually large species of *Tanymeles*, and the yellow wings which are black at both the bases and apices are not known elsewhere in *Tanymeles*. Other color characters and lancet structure will help distinguish *fasciatus* from other *Tanymeles* species.

galumnatus (Konow), new combination — Brazil (Pará)

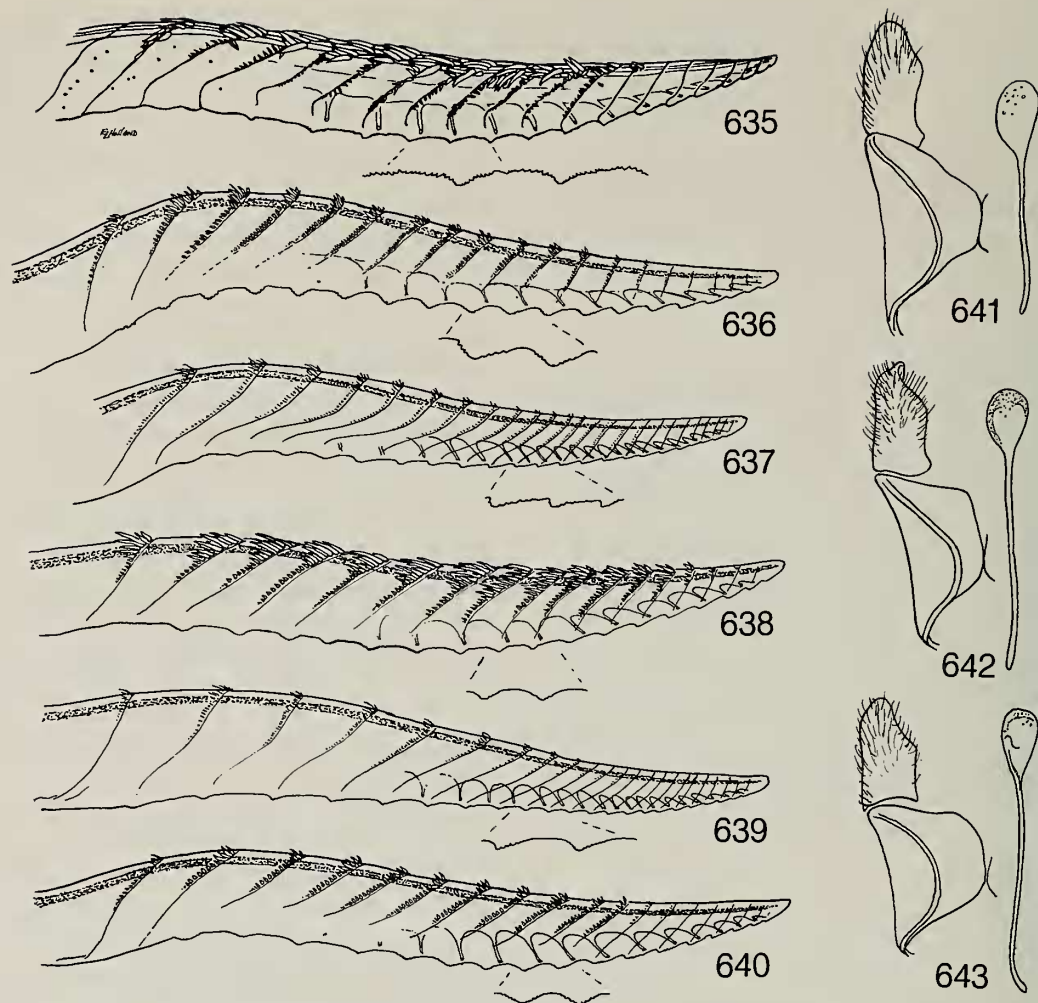
**Gymnia galumnata* Konow 1906b: 242. E. "Brasilia (Itaituba)" (Eberswalde, E).—Oehlke and Wudowenz 1984: 384 (holotype).

I have seen only the holotype: length, 5.9 mm; yellow orange with following black: 2nd and 3rd antennal segments, inter- and postocellar area, meso- and metanotum, apical 1-2 abdominal terga, sheath, apical third to half of hindtibia, and hindtarsus; fore- and midtarsi infuscate; wings uniformly blackish infuscated, veins and stigma black.

hilarulus Konow — Brazil (Pará)

**Tanymeles hilarulus* Konow 1906b: 244-245. E. "Brasilia (Itaituba)" (Eberswalde, E).—Malaise 1937a: 56 (in key).—Malaise 1955: 113 (in key).—Oehlke and Wudowenz 1984: 387 (holotype).

I have seen only the holotype: length, 5.0 mm; antenna black with 1st segment orange; head black with supraclypeal area, clypeus, and mouthparts orange; thorax orange with black spot on each mesonotal lateral lobe; abdomen orange with apical 2 segments and sheath black; legs orange with foretarsus, mid- and hindtibiae and tarsi black; wings hyaline, faintly infuscated toward apices; veins and stigma black.



Figs. 635-643. *Tanymeles*. Female lancets of 635, *T. tosus*; 636, *T. medeus*; 637, *T. critus*; 638, *T. rossi*; 639, *T. bequaerti*; 640, *T. wizunus*. Male genitalia of 641, *T. inconspicuus*; 642, *T. rossi* ?; 643, *T. wizunus*.

hypoleucus (Klug) — Brazil (Rio de Janeiro, São Paulo)

**Hylotoma* (*Schizocera*) *hypoleuca* Klug 1834: 250. M. "Brasilien" (Berlin, M.).— Kriechbaumer 1884: 296.

Sericocera hypoleuca: Norton 1867: 53.

Gymnia hypoleuca: Kirby 1882: 43.— Dalla Torre 1894: 318.

Schizoceros hypoleucus: Konow 1905a: 29.

Brachyphatnus hypoleuca: Konow 1906b: 251.

Tanymeles hypoleucus: Malaise 1955: 112 (São Paulo ?).

This species is black with the palpi, sometimes mesosternum, abdomen except for apical one or two segments, and legs except for apical 2/3 of hindtibia and hindtarsus orange. Both sexes are similarly colored. I have seen several specimens from Rio de Janeiro.

inconspicuus (Kirby) — Brazil (Ceará, D.F., Mato Grosso, Pará)

**Gymnia inconspicua* Kirby 1882: 42, pl. 3, fig. 9, 10. F. M. "Amazons, Santarem" (London, F.).— Dalla Torre 1894: 318.— Konow 1905a: 27.

Ptenos inconspicua: Konow 1906b: 186.— Forsius 1925a: 6 (same as *Ptenos humeratus* Konow ?).

Tanymeles inconspicua: Malaise 1937a: 55, 56.— Malaise 1955: 112 (as syn. of *mesomelas*).— Smith 1981: 285, fig. 29-32 (D.F. records; genitalia fig.).

I believe *inconspicuus* is a valid species not a synonym as Malaise (1955) proposed. The color of the tibiae differs from that of *mesomelas*, and *inconspicuus* is found in the interior of Brazil rather than on the southeastern coast. The color of *inconspicuus* is black

with the foretibia and supraclypeal area whitish. That of *mesomelus* is black with the bases of the mid- and hindtibiae white and has the supraclypeal area black. The specimen set aside as the type, BM #1.163, is hereby selected lectotype. It is a female from "Brazil, Santarem" and has the abdomen missing. I have seen specimens from Chapada, D.F., and Santarem, Brazil. The coloration is as follows: antenna and head black, supraclypeal area and palpi whitish; thorax black with pronotum, tegula, and extreme lateral margins of mesonotum orange; legs black with foretibia whitish; abdomen missing but black in other specimens examined; wings hyaline, apices lightly infuscated; veins and stigma black.

medeus Smith, new species — Brazil (D.F.)

Tanymeles medeus Smith.

Female.— Length, 5.8-6.2 mm. Orange with antenna, interocellar area, apex of sheath, apical 1/3 hindtibia, apex of midtibia, and mid- and hindtarsi black; foretarsus blackish. Sometimes medial black spots on terga 5-8, blackish band separating mesosternum and mesepisternum, and black spots on posterior portion of mesonotal lateral lobes. Wings uniformly, darkly black infuscated; veins and stigma black. Antennal flagellum flattened; antennal length to head width as 6.5:5.2. Third segment of labial palpus and 4th segment of maxillary palpus slightly enlarged, that of maxillary palpus not as noticeable as labial palpus; lower interocular distance to head width as 2.6:2.9; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.8:1.0:0.8; postocellar area 2X broader than long. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.6:1.6. Sheath bladeliike, without scopae, similar to *rasitus*, Fig. 626. Lancet as in Fig. 636.

Male.— Unknown.

Holotype.— E, "Res. Ecol. IBGE, KM 0, BR 251 - DF, 09 a 16-X-81, 3A-75-9 m" (Brasilia, IBGE).

Paratypes.— BRAZIL: Same data as holotype (3 E), same except dates, 29-X-5-XI-81 (1 E), 24-30-IX-81 (1 E) (Brasilia, IBGE; Washington).

Remarks.— This species is similar to *tosus* in color, but *tosus* has a much shorter postocellar area, about three times broader than long with the ocelli very close to the posterior margin of the head, and the interocellar area is orange.

mesomelus (Klug) — Brazil (Ceará, Mato Grosso, Rio de Janeiro, São Paulo ?)

**Hylotoma* (*Schizocera*) *mesomela* Klug 1834: 250. E. "Brasilien" (Berlin, E).— Kriechbaumer 1884: 296.

Sericocera mesomela: Norton 1867: 54.

Gymnia mesomela: Kirby 1882: 42.— Dalla Torre 1894: 318.

Sericoceros mesomelas: Konow 1905a: 28.

Tanymeles mesomelus: Malaise 1955: 112 (syn.: *inconspicua* Kirby).

I have seen specimens from Araripe, Ceará; "S. Paul."; and Chapada, Brazil. The coloration of the holotype is as follows: head and antenna black; palpi yellowish; thorax black with cervical sclerites, parapteron, pronotum, and tegula orange; legs black with basal 1/3 of midtibia and basal 1/2 of hindtibia whitish to orange; abdomen black; wings hyaline, slightly infuscated toward apices; veins and stigma black. See discussion under *inconspicua*.

nigritus (Klug), new combination — Brazil

**Hylotoma nigrita* Klug 1834: 250. M. "Brasilien" (Berlin, M).— Kriechbaumer 1884: 296.

Sericocera nigrita: Norton 1867: 54.

Gymnia nigrita: Kirby 1882: 43.— Dalla Torre 1894: 318.

Schizoceros nigritus: Konow 1905a: 29.

Brachyphatnus nigritus: Konow 1906b: 251.

The lower interocular distance of this species is a little longer than the eye length, but the eyes converge below and some males of *Tanymeles* have a longer lower interocular distance than do the females. This character would place *nigritus* in *Schizocerella*, but other characters support its placement in *Tanymeles*, e.g., lack of furrows or pits on the head, short, sharp interantennal carina, forewing venation (especially the last closed cubital cell which is much longer on the radius than on the cubitus), long palpi, and its general habitus. The coloration is black with the outer surface of the foretibia whitish and the first sternum orange to brown.

praecox (Klug), new combination — Brazil (Bahia)

**Hylotoma praecox* Klug 1834: 249. "M" = E. "Bahia in Brasilien" (Berlin, E).— Kriechbaumer 1884: 318.

Sericocera praecox: Norton 1867: 54.

Gymnia praecox: Kirby 1882: 42.— Dalla Torre 1894: 318.

Sericoceros praecox: Konow 1905a: 28.

The holotype is a female, not a male as stated by Klug. Length 7.0 mm, with coloration as follows:

Antenna black with 1st segment white; head black with interantennal area, supraclypeal area, clypeus, labrum, and palpi whitish; thorax with pronotum, tegula, parapteron, most of metanotum, narrow stripe at middle of mesosternum, mesepimeron, cervical sclerites, and metapleuron white, mesonotum red with scutellum and spot at posterior corner of each lateral lobe black; abdomen black with basal plates and 2nd tergum whitish at center; legs white, apical 1 or 2 tarsal segments blackish; wings uniformly lightly blackish; veins and stigma black.

rasitus Smith, new species — Peru

Tanymeles rasitus Smith.

Female.—Length, 8.0 mm. Antenna with 1st and 2nd segments yellow, 3rd segment yellow at base, black on apical 2/3. Head black with palpi, mandible, labrum, clypeus, supraclypeal area, interantennal carina, and part of paraantennal fields white to yellowish. Thorax yellow orange with mesoprescutum and mesonotal lateral lobes except for margins black. Legs entirely yellow orange. Abdomen yellow orange with dorsum of segment 3 to apex, apical 2 segments entirely, and sheath black. Forewing yellow orange with apex black; stigma yellow and veins yellow in yellowish part, brownish in infuscated apex. Antennal length 1 1/2X head width, as 9.3:6.1; 1st and 2nd segments subequal in length; 3rd segment laterally flattened, slightly tapering toward apex. Lower interocular distance to eye length as 2.5:3.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:1.0:0.8; postocellar area 3X broader than long. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.5:1.8. Sheath slender, simple, without scopae, in lateral view rounded at apex (Fig. 626). Lancet as in Fig. 634.

Male.—Unknown.

Holotype.—F, "Peru: Monson Valley, Tingo Maria, X-26-1954, E. I. Schlinger and E. S. Ross, collectors" (San Francisco).

Remarks.—The yellowish wings with the apices black, black mesoprescutum and mesonotal lateral lobes, and lancet will separate *rasitus* from *suritus* (Fig. 633). Both species have yellowish wings with only the apices infuscated.

rossi Smith, new species — Peru

Tanymeles rossi Smith.

Female.—Length, 5.0 mm. Antenna black. Head black with supraclypeal area, clypeus, labrum, and palpi light orange. Thorax orange. Legs orange with

apical 1/3 of hindtibia and all hindtarsus black. Abdomen orange with apical 2 segments and sheath black. Wings lightly, uniformly blackish infuscated; veins and stigma black. Antennal length 1 1/3X head width, as 5.3:4.0; 1st and 2nd segments subequal in length; 3rd segment not distinctly laterally flattened, tapering toward apex. Lower interocular distance to eye length as 1.7:2.4; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.7:0.3; postocellar area 5X broader than long. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.5:1.2. Sheath slender, simple, without scopae, in lateral view rounded at apex (similar to *tosus*, Fig. 628). Lancet as in Fig. 638.

Male.—Unknown.

Holotype.—F, "El Campamionto, Peru, col. Perene, 22-24 June '20, Cornell Univ. Expedition Lot 607" (Ithaca).

Remarks.—A specimen that may be the male (genitalia, Fig. 642) is also from Peru (10 km NW Pucallpa, X-1954) as it is similarly colored, but the association is not certain. The mostly black head, orange legs and thorax, and orange abdomen with the apical segments black will separate *rossi* from other *Tanymeles* species.

segrex (Konow), new combination — Brazil (Pará)

**Ptenos segrex* Konow 1906b: 185-186. F. "Brasilia (Obidos)" (Eberswalde, F).—Forsius 1925a: 5.—Oehlke and Wudowenz 1984: 411 (holotype).

The sheath has distinct, expanded scopae, similar to Fig. 543, unlike other species of *Tanymeles*. I have seen only the holotype: length, 6.0 mm; antenna, head, thorax, and legs black; labrum with brownish tinge; abdomen orange with basal plates, posterior transverse stripes on terga 2-5 covering about half of each, and segments beyond 5th black; wings hyaline, slightly infuscated at apices; veins and stigma black.

socius (Konow), new combination — Brazil (Pará)

**Sericoceros socius* Konow 1906b: 249-250. M. "Brasilia (Obidos)" (Eberswalde, M).—Oehlke and Wudowenz 1984: 413 ("5 M Lectotypus und Paralectotypen (des. D.R.Smith 1977), Obidos 1904").

Six males labeled as types are at Eberswalde, 5 of which are from Obidos. One of these is the lectotype, the other 4 paralectotypes. I labeled these in 1977 but did not publish on it prior to Oehlke and Wudowenz (1984). The other male appears to be from "Alemquer," but the handwriting is not clear. It cannot be part of the

type series since Konow did not mention that locality. The eyes are farther apart than the eye length, as 4.2:3.0, and it may be necessary to transfer this to *Schizocerella*. The palpi are long, typical for *Tanymeles*, and some males of *Tanymeles* have short, widely separated eyes. The lectotype is about 5 mm long; antenna and head black; thorax black with pronotum, tegula, and parapteron yellow orange; abdomen black above, mostly yellow orange beneath except for black apical segment and hypandrium; legs with coxae and trochanters black, femora black with apical third white, tibiae white with apical 1/5 to 1/4 black, midtarsus whitish but blackish apically, hindtarsus black; wings hyaline; veins and stigma black.

suritus Smith, new species — Peru

Tanymeles suritus Smith.

Female.—Length, 8.2–8.5 mm. Antenna yellow to light orange with apical 1/3 of 3rd segment blackish. Head black with interantennal carina, supraclypeal area, clypeus, labrum, mandibles, and palpi yellow to light orange. Thorax orange. Legs orange. Abdomen orange with dorsum of 4th to last segment, apical 3 segments entirely, and sheath black. Forewing yellow with apex blackish infuscated; stigma yellow and veins yellow in yellow part, blackish in infuscated part. Antennal length 1 2/3X head width, as 10.2:6.2; 1st and 2nd segments subequal in length; 3rd segment laterally flattened and tapering toward apex. Lower interocular distance to eye length as 2.5:3.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:1.2:0.6; postocellar area 3X broader than long. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.8:2.1. Sheath simple, slender, without scopae, in lateral view rounded at apex (like *fasciatus*, Fig. 625). Lancet as in Fig. 633.

Male.—Unknown.

Holotype.—E, “Peru: Monson Valley, Tingo Maria, X-21-1954, E. I. Schlinger and E. S. Ross, collectors” (San Francisco).

Paratypes.—PERU: Same data as for holotype except X-26-1954 (1 E) (San Francisco).

Remarks.—The yellow wings with the black apices and the entirely orange thorax will separate *suritus* from other species. The closest species, *rasitus* (lancet, Fig. 634), also from Peru, has the mesonotum partly black and the antenna not as tapering but of more uniform width toward its apex.

tosus Smith, new species — Bolivia

Tanymeles tosus Smith.

Female.—Length, 4.1 mm. Orange with antenna except for base of 1st segment, sheath, apex of hindtibia, and hindtarsus black. Wings uniformly, darkly black infuscated; veins and stigma black. Antennal length 1 1/4X head width, as 6.3:4.6; 1st and 2nd segments each subequal in length; 3rd segment laterally flattened and tapering to apex. Lower interocular distance to eye length as 2.0:2.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.7:0.4; postocellar area 3X broader than long. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.6:1.4. Sheath slender, simple, without scopae, in lateral view rounded at apex (Fig. 628). Lancet as in Fig. 635.

Male.—Unknown.

Holotype.—E, “Bolivia: Dept. Beni Rio Itenez at mouth of Rio Baures, X-10-1964, J. K. Bouseman, Collector” (New York).

Other specimen.—Bolivia, Beni, 40 km E San Borja (Washington).

Remarks.—The mostly entirely orange coloration will distinguish *tosus* from other species. It is near *apicalis*, but the wings are more darkly and uniformly infuscated and its size is smaller.

urcacensis (Cameron), new combination — Brazil (Amazonas)

**Trailia urcacensis* Cameron 1878: 149. E. “Urcaca, Rio Purus, Amazons” (London, E).

Gymnia urcacensis: Kirby 1882: 41.—Dalla Torre 1894: 318.—Konow 1905a: 27.

Gymnia analis: Forsius 1925a: 8 (not Cameron, misidentification).

Tanymeles analis Malaise 1937a: 56. E, M. “Amazonas (Rio Autaz)” (Stockholm, E). New synonymy.

See remarks under *apicalis*. The holotype is BM #1.164. This species is orange with the 2nd and 3rd antennal segments, sheath, tarsi, and the apex of the hindtibia black. The wings are hyaline but lightly infuscated at their apices. The sheath is slender from above and rounded in lateral view.

wizunus Smith, new species — Peru

Tanymeles wizunus Smith.

Female.—Length, 5.5–6.0 mm. Antenna black with 1st segment orange yellow. Head black with interantennal carina, supraclypeal area, clypeus, and

labrum light orange; mandible and palpi black. Thorax black with cervical sclerites, tegula, pronotum, upper 1/2 of mesepisternum, mesepimeron, metapleuron, extreme posterior corner of mesoprescutum, and metanotum light orange to yellow. Legs light orange with tarsi and apical 1/5 of hindtibia black. Abdomen black. Wings uniformly blackish infuscated; veins and stigma black. Antennal length 1 2/3X head width, as 7.8:4.7; 1st segment slightly longer and broader than 2nd segment; 3rd segment laterally flattened and tapering to apex. Lower interocular distance to eye length as 2.3:2.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.6:0.9:0.5. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.5:1.5. Sheath simple, slender, without scopae, in lateral view rounded at apex (Fig. 627). Lancet as in Fig. 640.

Male.—Length, 5.2 mm. Coloration similar to that of female. Antennal length to head width as 4.1:2.3. Genitalia as in Fig. 643.

Holotype.—E, "Peru: Monson Valley, Tingo Maria, X-19-1954, E. I. Schlinger and E. S. Ross, collectors" (San Francisco).

Paratypes.—PERU: Same data as for holotype, except X-25-1954 (1 E); 10 km. N.W. Pucallpa, X-3-1954, E. I. Schlinger & E. S. Ross (1 M) (San Francisco).

Remarks.—This species is close to *alternus* but is separated by the pale upper portion of the mesepisternum, black on the anterior portion of the mesonotum (not the posterior portion), and the pale apices of the fore- and midtibiae (blackish in *alternus*).

Genus **TRAILIA** Cameron

Trailia Cameron 1878: 148-149. Type species: *Trailia analis* Cameron. Desig. by Rohwer 1911a.

Antenna (Fig. 645) with 1st segment longer than broad, 2nd segment slightly longer than broad, 3rd segment of female antenna laterally flattened and ta-

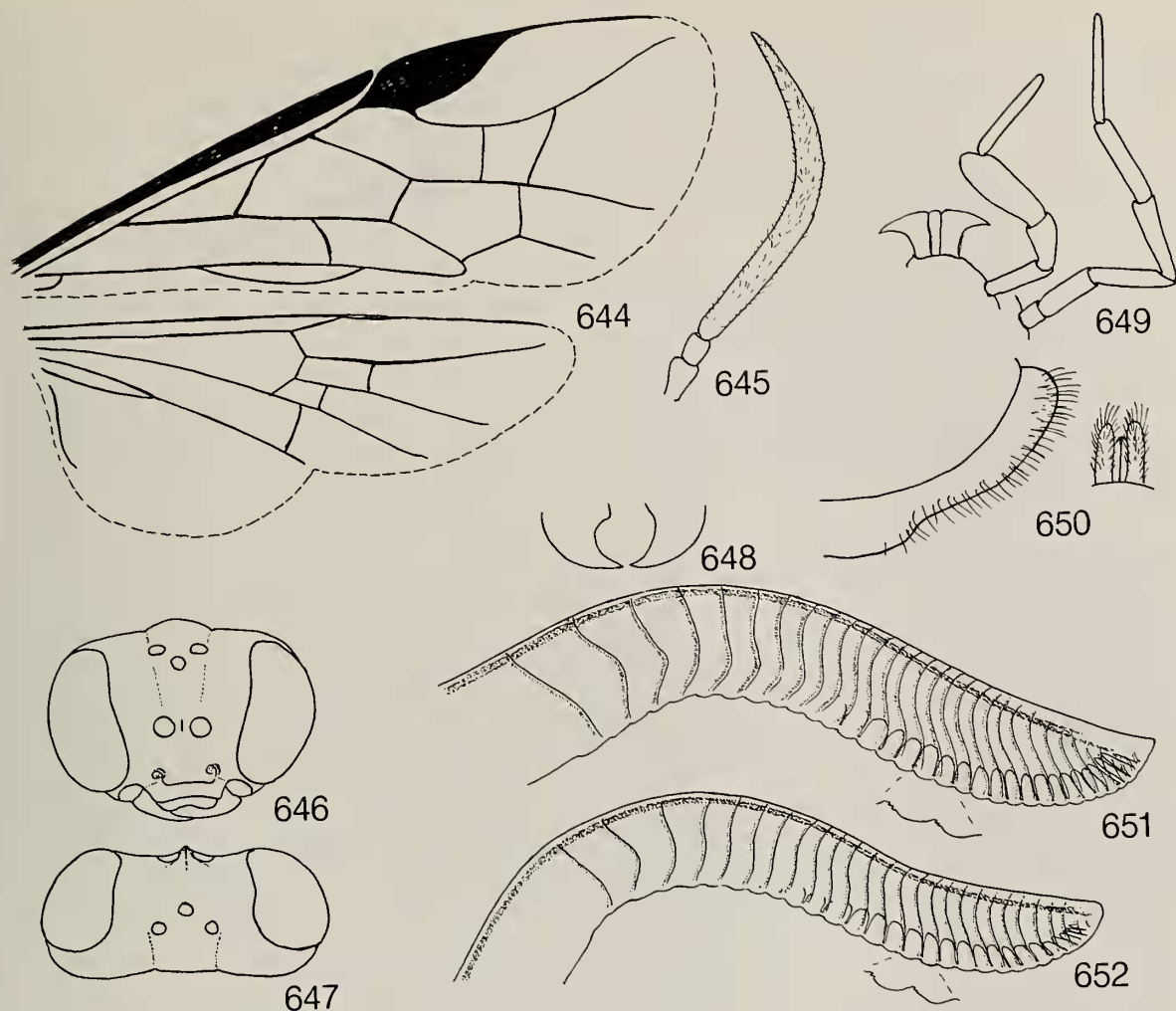
pering to acute apex; antennal length about 1 1/2X head width. Malar space less than 1/2 diameter of front ocellus to nearly linear; clypeus subtruncate; left mandible simple, right mandible with basal tooth (Fig. 648); maxillary palpus longer than eye length, 2nd and 3rd segments of labial palpus enlarged, segments of maxillary palpus not enlarged or 4th very slightly so (Fig. 649); eyes large and converging below, lower interocular distance less than eye length (Fig. 646); head from above sharply narrowing behind eyes (Fig. 647); very short, low but sharp interantennal carina present. Forewing (Fig. 644) with radial cell open; costa narrower to about equal to width of intercostal area; 3 cubital cells with last closed cell longer on radius than on cubitus; distance between M and Rs+M on Sc+R subequal to length of vein M. Hindwing (Fig. 644) with anal cell, cell shorter than its petiole. Hindbasitarsus longer than length of remaining tarsal segments combined; tarsal claws simple.

This genus is recognized by the open radial cell of the forewing, presence of an anal cell in the hindwing, large eyes with the lower interocular distance less than the eye length, lack of enlarged segments of the maxillary palpus, and flattened, curved antennal flagellum of the female. It superficially resembles *Ptilia*, but *Ptilia* has a closed radial cell in the forewing, an extremely enlarged fourth segment of the maxillary palpus, acutely pointed female sheaths in lateral view, and short, triangular lancets (Figs. 501-509). Except for the open radial cell of the forewing, *Trailia* could also be confused with *Didymia* and *Hemidianeura*; however, *Didymia* has an enlarged fourth segment of the maxillary palpus and *Hemidianeura* has the last closed cubital cell of the forewing quadrate, no longer on the radius than on the cubitus. Despite these close affinities with other genera, I believe it is best to retain *Trailia* as a separate genus.

Two species are known. I have seen very few specimens and no males. The species are found in Guyana, Brazil, and Bolivia.

KEY TO SPECIES

1. Malar space distinct, about half diameter of front ocellus; serrulae of lancet with small anterior subbasal teeth (Fig. 651) (sheath as in Fig. 650). *analis* Cameron
- Malar space nearly linear; serrulae of lancet with 2 or 3 large anterior subbasal teeth (Fig. 652). *silana*, new species



Figs. 644-652. *Trailia*. 644, Forewing and hindwing of *T. analis*; 645, Female antenna of *T. analis*. 646, Front view of head of *T. analis*. 647, Dorsal view of head of *T. analis*. 648, Mandibles of *T. analis*. 649, Palpi of *T. analis*. 650, Female sheath of *T. analis*. Female lancets of 651, *T. analis*; 652, *T. silana*.

SPECIES

analis Cameron — Bolivia; Brazil (Amazonas, Mato Grosso)

**Trailia analis* Cameron 1878: 149. F. "Brazil" (London, F).
Gymnia analis: Kirby 1882: 41.— Konow 1905a: 27.—
 Konow 1906b: 242.

The holotype is BM#1.166. The only locality on the holotype is "Brazil." I have seen specimens from Hyutanahan, Rio Purus, Brazil; Chapada, Brazil; and Prov. del Sara, 450 m, Bolivia. Most specimens have the thorax orange yellow with large black spots on the mesoprescutum and mesonotal lateral lobes, but one of the specimens from Bolivia has only the mesoprescutum blackish.

silana Smith, new species — Guyana

Trailia silana Smith.

Female.— Length, 7.0 mm. Antenna with 1st and 2nd segments and base of flagellum yellow, apical 2/3 of flagellum black. Head black with supraclypeal area, clypeus, labrum, and palpi yellow. Thorax yellow with most of mesoprescutum and mesonotal lateral lobes black (anterolateral portions of mesoprescutum and lateral portions of lateral lobes yellow). Abdomen yellow with apical 2 terga and sheath black. Legs yellow with extreme apex of hindtibia and hindtarsus black. Wings yellowish with apex of forewing beyond stigma blackish and extreme base slightly blackish; veins and stigma yellow in yellow portion, blackish in black portion. Antennal length to head width as 4.4:2.5. Lower interocular distance to eye length as 1.1:1.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.8:0.9:0.5; very short interantennal carina present; malar space nearly linear, less than 1/4 diameter of front ocellus. Sheath with narrow, posteriorly projecting scopae, in lateral view rounded (similar to *analis*, Fig. 650). Lancet as in Fig. 652, each serrula with several coarse anterior subbasal teeth.

Male.— Unknown.

Holotype.— F, "Bartica, Brit. Guiana, II-21-1913" (Ithaca).

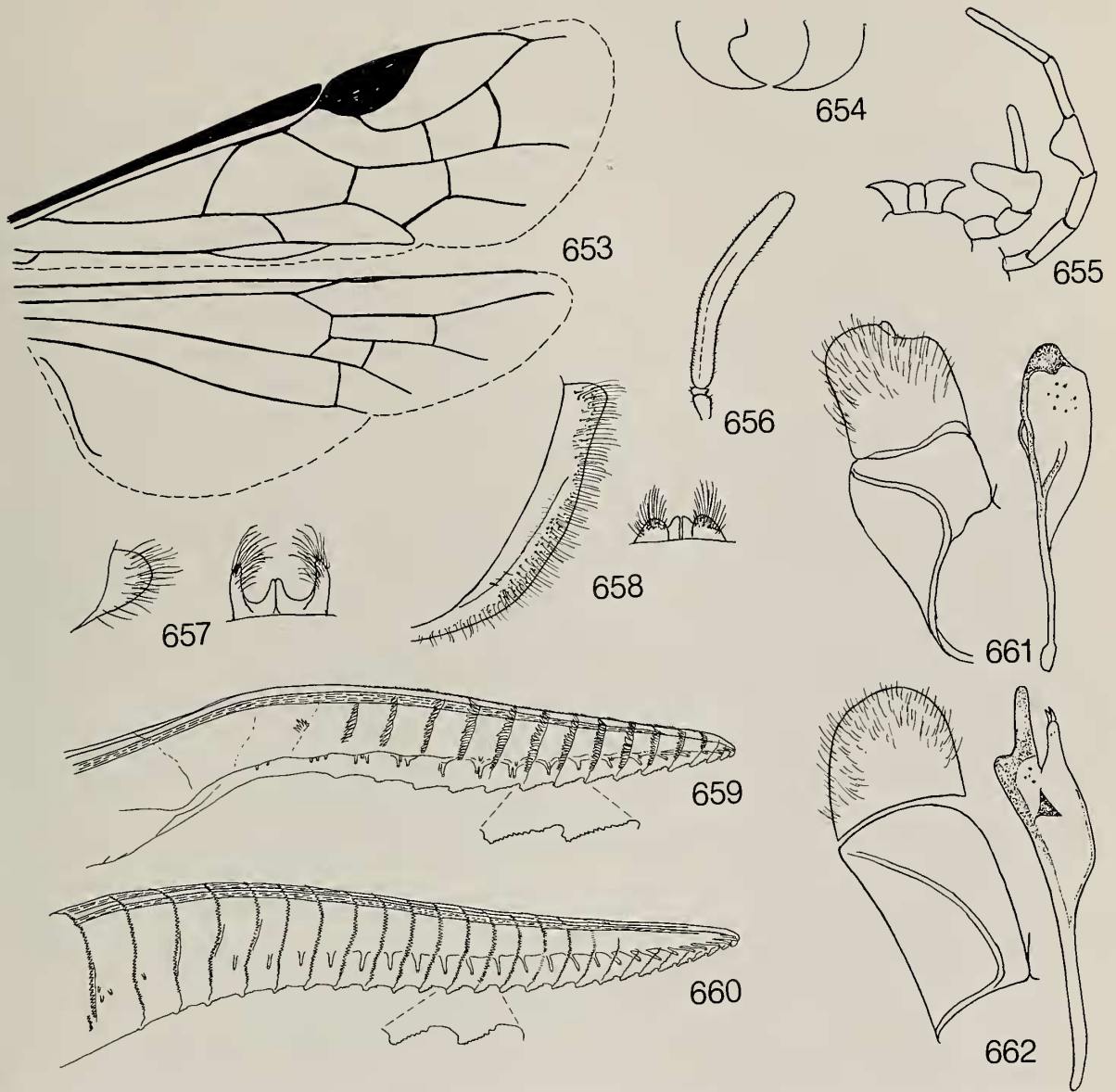
Remarks.— This species and *analis* are identical in coloration. The differences are the narrower malar space of *silana*, serrulae of the lancet (Figs. 651, 652), and smaller size, the specimens of *analis* examined being over 8 mm in length.

Genus **TRIPTENUS** Malaise

Triptenus Malaise 1937a: 56-57. Type species: *Ptenos romani* Forsius. Orig. desig.

Antenna (Fig. 656) stout, length less than 1 1/2X head width; 1st segment longer than broad; 2nd segment broader than long; 3rd segment of female antenna faintly clublike, broadened toward rounded apex, laterally flattened. Malar space linear to slightly evident; clypeus subtruncate, very slightly circularly emarginated; eyes relatively large, slightly converging below, lower interocular distance subequal to or less than eye length (as in *Didymia*, Fig. 339); head from above narrowing behind eyes; left mandible simple, right mandible with basal tooth (Fig. 654); interantennal area low without sharp carina; palpi (Fig. 655) long, maxillary palpus longer than eye length, 3rd segment of labial palpus and 4th segment of maxillary palpus greatly enlarged. Forewing (Fig. 653) with radial cell closed with accessory vein at apex; small basal anal cell present; 3 cubital cells, last closed cell slightly longer on radius than on cubitus; distance between M and Rs+M on Sc+R more than half length of vein M. Hindwing (Fig. 653) with anal cell absent. Length of hindbasitarsus equal to or shorter than length of remaining tarsal segments combined; tarsal claw simple.

This genus is very similar to *Didymia* and would key to that genus if it were not for the absence of the anal cell in the hindwing. Even though there is such a resemblance to *Didymia*, I choose to keep it separate. *Triptenus* may be separated from other genera that lack an anal cell in the hindwing by the closed radial cell of the forewing, presence of three cubital cells in the forewing, the large, converging eyes, and the third segment of the labial palpus and fourth segment of the maxillary palpus which are obviously expanded. The genus occurs in Panama, Venezuela, and Brazil. Hosts are not known.



Figs. 653-662. *Triptenus*. 653, Forewing and hindwing of *T. humeratus*. 654, Mandibles of *T. humeratus*. 655, Palpi of *T. humeratus*. 656, Female antenna of *T. romani*. Female sheaths of 657, *T. humeratus*; 658, *T. romani*. Female lancets of 659, *T. romani*; 660, *T. humeratus*. Male genitalia of 661, *T. humeratus*; 662, *T. romani*.

KEY TO SPECIES

1. Thorax black, pronotum and tegula orange; mid- and hindlegs black, extreme base of hindtibia whitish in male; forewing blackish infuscated from base of stigma to apex, darkest below stigma, gradually lighter toward apex; female sheath with long, slender scopae (Fig. 657); lancet as in Fig. 660; male genitalia as in Fig. 661 *humeralus* (Konow)
- Thorax black, pronotum, upper 1/3 or more of mesepisternum, and sutures of mesoprescutum orange; basal 1/2 of mid- and hindtibiae white, in male mostly all white; forewing with black band below stigma and black at apex with hyaline band between blackish parts; female sheath with short, stout scopae (Fig. 658); lancet as in Fig. 659; male genitalia as in Fig. 662 *romani* (Forsius)

SPECIES

humeralus (Konow) — Brazil (Amazonas, D.F., Goiás, Pará)

**Ptenos humeralus* Konow 1906b: 185. F. M. "Brasilia (Obidos)" (Eberswalde, E). — Forsius 1925a: 6. — Oehlke and Wudowenz 1984: 387 ("F Lectotypus (beide des. D.R. Smith 1977), 1 M Paralectotypus, Obidos, 1904").
Triptenus humeralus: Smith 1981: 285, fig. 26-28 (D.F. records; female and male genitalia fig.).

A female and a male at Eberswalde both have type labels and both are labeled "Obidos 1904." I labeled these lectotype and paralectotype in 1977, but did not publish on this prior to Oehlke and Wudowenz (1984). I have seen specimens from La Puraquequara, AM, and Goiás, Gurupl., 800 km N of Brasilia, Brazil.

romani (Forsius) — Brazil (Amazonas); Panama; Venezuela

**Ptenos romani* Forsius 1925a: 4-5. F. "Rio Autaz, Cururuzinho" (Stockholm, E).
Triptenus romani: Malaise 1937a: 57.

I have seen specimens from Curiche, Choco, Colon, Panama, and Monagas, Jusepin, Venezuela.

Genus **TROCHOPHORA** Konow

Trochophora Konow 1905b: 158. Type species: *Trochophora duckei* Konow. Monotypic.

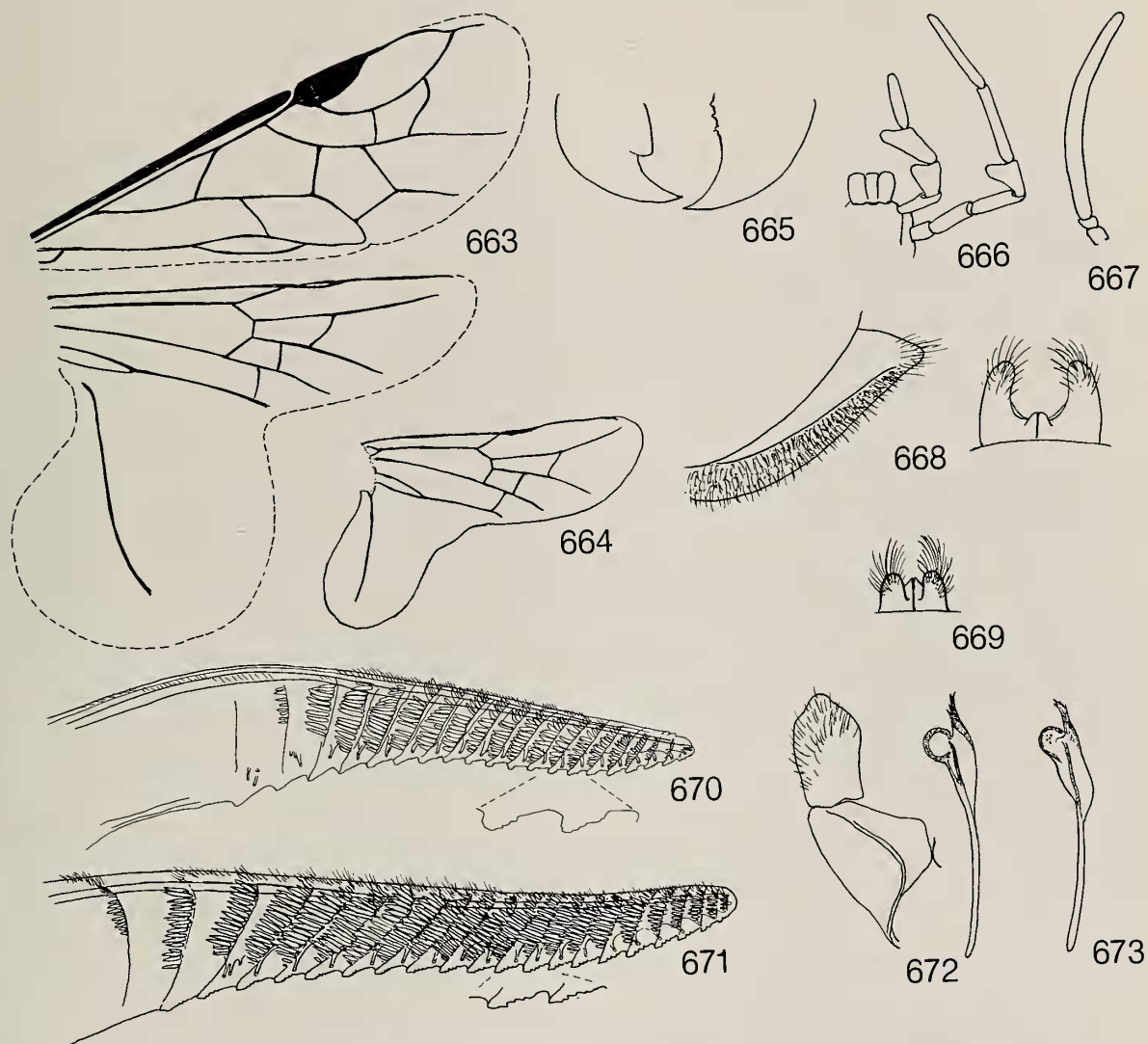
Antenna (Fig. 667) with 1st segment about as long as broad; 2nd segment broader than long; 3rd segment of female antenna stout, slightly laterally compressed, rounded at apex; antennal length shorter than 1 1/2X head width. Malar space linear; clypeus truncate; eyes large and covering below, lower interocular distance subequal to eye length (similar to *Didymia*, Fig. 339); interantennal area with low carina; head from above narrowing behind eyes; left mandible with two small crenulations near center, right mandible with basal tooth (Fig. 665); palpi (Fig. 666) with maxillary palpus longer than eye length, 2nd and 3rd segments of labial palpus and 4th segment of maxillary palpus enlarged. Forewing (Fig. 663) with radial cell closed with long accessory vein at apex; costa swollen, as broad or broader than intercostal area; small basal anal cell present; distance between M and Rs+M on Sc+R equal to half or more length of vein M; 3 or 4 cubital cells with last closed cell longest on radius. Hindwing (Figs. 663, 664) with anal cell present, shorter than or equal to its petiole; jugal area greatly enlarged, broader and longer than rest of hindwing. Length of hindbasitarsus longer than length of remaining tarsal segments combined; tarsal claws simple.

This genus is immediately recognized by the extremely enlarged jugal area of the hindwing. Such an enlargement is not known elsewhere in sawflies. All other characters are similar to *Didymia*, and, if it were not for the unusual hindwings, the species would be placed in that genus.

Representatives of *Trochophora* are found from Costa Rica to Brazil. *Rourea* sp. is the host plant for one species.

KEY TO SPECIES

1. Jugum of hindwing narrow and oblong (Fig. 664); lancet with about 20 serrulae, lateral spines overlapping (Fig. 671); sheath as in Fig. 668; male genitalia as in Fig. 672 *opla* Smith
- Jugum of hindwing broad and rounded (Fig. 663); lancet with 15-20 serrulae, lateral spines not overlapping, less than the width of a segment (Fig. 670); sheath as in Fig. 669; male genitalia as in Fig. 673 *lobata* (Erichson)



Figs. 663-673. *Trochophora*. 663, Forewing and hindwing of *T. lobata*. 664, Hindwing of *T. opla*. 665, Mandibles of *T. lobata*. 666, Palpi of *T. lobata*. 667, Female antenna of *T. lobata*. Female sheaths of 668, *T. opla*; 669, *T. lobata*. Female lancets of 670, *T. lobata*; 671, *T. opla*. Male genitalia of 672, *T. opla*; 673, *T. lobata*.

SPECIES

lobata (Erichson) — Brazil (Amazonas, Maranhão, Mato Grosso, Pará, Roraima); Costa Rica; Guyana; Panama; Venezuela

Hylotoma lobata Erichson 1848: 587. British Guiana (not located).

Dielocerus lobata: Kirby 1882: 50.— Dalla Torre 1894: 323.

Dieloceros lobatus: Konow 1905a: 25.

Trochophora lobata: Malaise 1941: 138 (syn.: *duckei* Konow).

**Trochophora duckei* Konow 1905b: 158-159. F, M. "Brasilia (Maranhao, S. Luiz; R. Tapaio, Itaituba)" (Eberswalde, M).— Konow 1905a: 25.— Hobby 1937: 72, fig. 1 (note on unusual enlargement of hindwing).— Oehlke and Wudowenz 1984: 379 ("M Lectotypus (des. D.R. Smith), Maranhão S. Luiz, 19.9.1903, leg. Dücke; 1 Exemplar (ohne Flügel und Abdomen), Paralectotypus, R. Tapaio, Itaituba, 28.8.1902, leg. Dücke").

Host: Reared from *Rourea glabra* (Connaraceae) in Costa Rica, Santa Rosa National Park, Guanacaste Province, by D. H. Janzen.

A male at Eberswalde labeled "Maranhão, S. Luiz" is the lectotype. A female from R. Tapaio, Itaituba is a paralectotype and has the abdomen missing, no wings except for the left hind wing, and lacks the four hindlegs. The male has the hindtibia white with the apical 1/3 black. I labeled the lectotype and paralectotype but did not publish on the designations prior to Oehlke and Wudowenz (1984). I have seen specimens from Surumu, Roraima, Brazil; Chapada, Mato Grosso, Brazil; Manaus, Brazil; "Venezuela"; Santa Rosa Park, Costa Rica; and La Chorrera, Panama.

opla Smith — Brazil (D.F.)

**Trochophora opla* Smith 1981: 283-284, fig. 19-22. F, M. "Res. Ecol. IBGE, Km 0 BR 251 - DF" (Brasilia, IBGE, E).

Genus ZYNZUS, new genus

Type species: *Ptenus magnus* Smith.

Antenna (Fig. 680, 681) with 1st segment as long as or slightly longer than broad; 2nd segment broader than long; 3rd segment of female antenna usually of uniform width, rounded at apex, sometimes laterally compressed; antennal length slightly less than head width to not more than 1 1/4X head width. Malar space linear to slightly evident; eyes small to moderately large, slightly converging below, lower interocular distance equal to or slightly greater than eye length (Fig. 675); head from above narrowing behind eyes; interantennal area rounded or with low carina, supraclypeal area convex; clypeus truncate to subtruncate; left mandible simple, right mandible with basal tooth (Fig. 677); maxillary palpus shorter than or subequal to eye length, without enlarged segments or 3rd segment of labial palpus slightly enlarged (Figs. 678, 679). Forewing (Fig. 674) with radial cell closed with accessory vein at apex; small basal anal cell present; distance between veins M and Rs+M on Sc+R about half or more length of vein M; 3 or 4 cubital cells with last closed cell small, about as long on radius as on cubitus. Hindwing (Fig. 674) with anal cell absent. Length of hindbasitarsus shorter than length of remaining tarsal segments combined; tarsal claws simple.

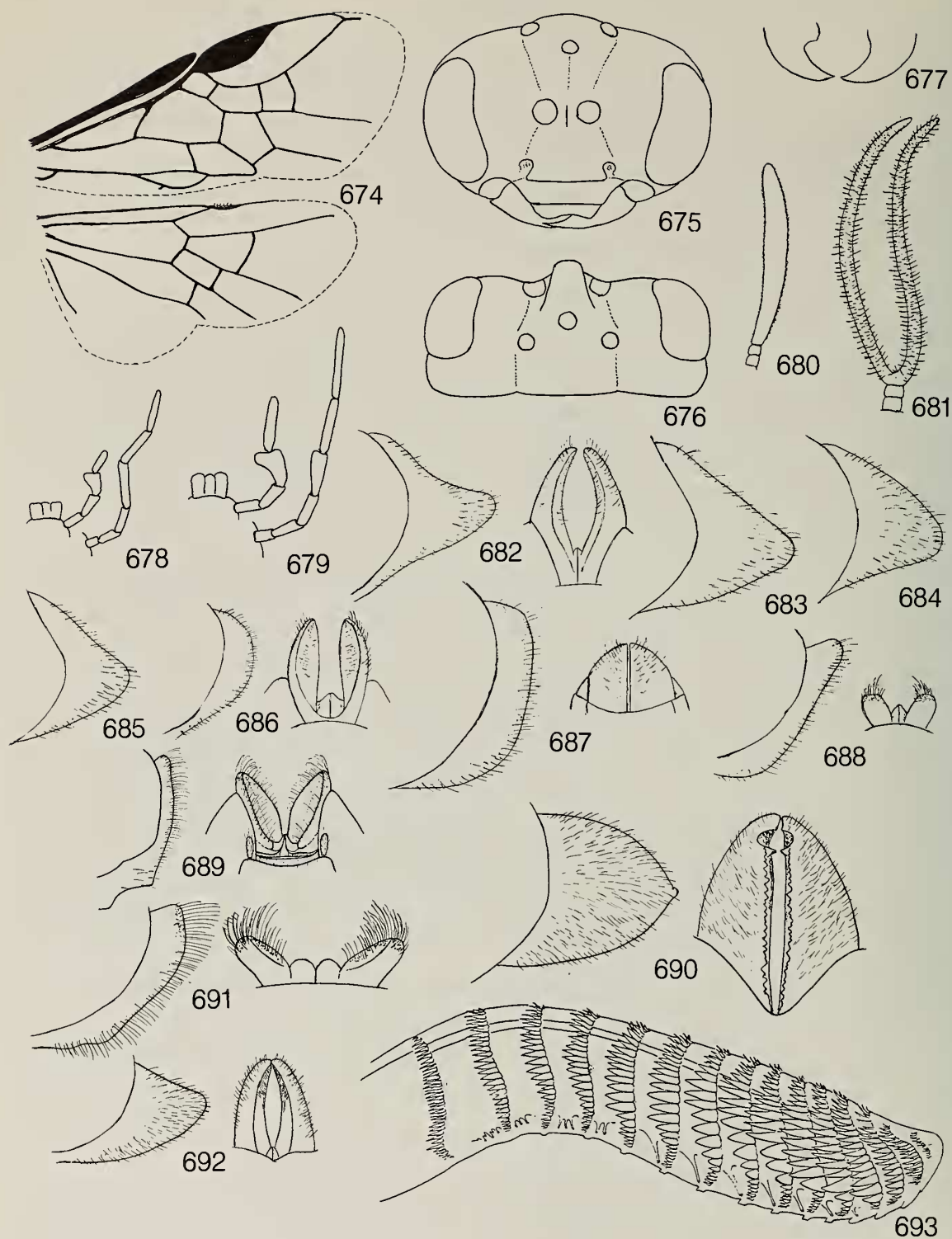
This group of species was previously placed in *Ptenus*. The type species of *Ptenus* is atypical for this group and is here referred to *Hemidianeura*, therefore this group of species does not have a generic name. All species of *Zynzus* are small, usually about 8 mm or less in length, with short antennae, widely separated eyes with the lower interocular distance usually greater than the eye length, short palpi commonly without enlarged segments, lack the anal cell in the hindwing, have a short, quadrate last closed cubital cell in the forewing, and have the radial cell of the forewing closed with a long accessory vein at its apex.

Zynzus is found in southwestern United States to Central America. Smith (1970) treated the species north of Mexico, and all these species are included in the following key except for *texanus* and *vanus* which are transferred to *Hemidianeura*. Males have not been associated for many species, thus, that part of the key should be used with this in mind. Host plants include *Acacia*, *Mimosa*, and *Desmanthus*.

The genus name is an arbitrary combination of letters. The gender is masculine.

KEY TO SPECIES

1. Female 2
- Male 20
2. Sheath with dorsal margin slanting downward to a rounded or acutely round apex near ventral margin (Figs. 682-685, 690, 692); lancet usually with large annular spines and rounded at apex (Figs. 693-701) 3
- Sheath with rounded apex near dorsal margin or apex broadly rounded or truncate (Figs. 686-689, 691); lancet usually pointed at apex, long and slender or triangular, with none or short annular spines (Figs. 702-710) 12
3. Abdomen black 4
- Abdomen orange, or orange with some black on dorsum or venter 8
4. Thorax black 5
- Thorax with pronotum orange, mesonotum usually partly orange 6
5. Antenna short, slightly less than head width; lancet with short spines, usually not overlapping (Fig. 694); smaller species, about 5.0 mm long; sheath as in Fig. 685, with minute inner teeth *parvus* (Smith)
- Antenna longer, about 1 1/4X head width; lancet with numerous slender spines, those on anterodorsal area overlapping (Fig. 701); larger species, about 8.5 mm long; sheath as in Fig. 690, with large inner teeth ... *menkei*, new species
6. Mesonotum black or dark brown, pale areas, if present, confined to lateral margins or sutures between lobes; mesopleuron black (lancet as in Fig. 696; sheath as in Fig. 684) *vargus* (Smith) (in part)
- Mesonotum and sometimes part of mesopleuron orange. 7
7. Upper 1/3 of mesopleuron orange; lancet as in Fig. 698 *townesi*, new species
- Mesopleuron black; lancet as in Fig. 700 *retus*, new species
8. Wings hyaline with apex from base of stigma infuscated black; abdomen orange with sterna black (lancet as in Fig. 697; sheath as in Fig. 692) *apicofuscus*, new species
- Wings uniform in coloration; abdomen orange, if partly black not with pattern as above 9
9. Thorax mostly black except for orange pronotum and sometimes mesonotal lateral lobes; abdomen partly black on dorsum and/or venter 10
- Thorax orange with mesosternum black; abdomen orange 11
10. Mesonotum black; lancet with annular spines short (Fig. 696); mid- and hindtibiae white except for black apical 1/3 of hindtibia (sheath as in Fig. 684) *vargus* (Smith) (in part)
- Mesonotum with lateral lobes orange, prescutum and scutellum black; lancet with long annular spines (Fig. 699); mid- and hindlegs black *usirus*, new species
11. Dorsal margin of sheath straight (Fig. 683); costa of forewing black; annular spines of lancet broad (Fig. 695) *nigropectus* (Norton)
- Dorsal margin of sheath slightly concave (Fig. 682); costa of forewing sometimes whitish; lancet with slenderer annular spines (Fig. 693) *magnus* (Smith)
12. Lancet long, slender, with 17 or more serrulae, without annular spines (Figs. 704, 710); sheath short and broad in lateral view, straight at apex (Figs. 687, 689) 13
- Lancet short, triangular, with 12 or fewer serrulae and with annular spines (Figs. 702, 703, 705-709); sheath in lateral view rounded or straight above and rounded below (Figs. 686, 688, 691) 14
13. Sheath with broad scopae in dorsal view (Fig. 687); all serrulae of lancet similar in structure (Fig. 710); pronotum and metanotum white *patulus* (Smith)
- Sheath with slender scopae in dorsal view (Fig. 689); lancet with basal 4 or 5 serrulae longer and more protruding than apical serrulae (Fig. 704); pronotum and metanotum black *apulatus* (Greenbaum)
14. Abdomen black with brown to light orange markings possible on sterna and/or laterally 15
- Abdomen orange or orange with apical 2 or 3 segments black 16
15. Sheath broadly rounded at apex (Fig. 686); lancet as in Fig. 705 *imus* (Smith)
- Sheath straight above, rounded below (Fig. 688); lancet as in Fig. 706 *crassulus* (Cameron)
16. Thorax black (lancet as in Fig. 709) *luteiventris* (Cameron)
- Thorax orange or orange with mesosternum and/or spots on mesonotum black 17
17. Serrulae shallow, about 9 in number (Fig. 707) (thorax orange) *bicolor* (Smith)
- Serrulae deep, protruding, 11-12 in number (Figs. 702, 703, 708) (note: the species in couplets 18 and 19 are very similar and unknown color varieties may complicate species identification) 18



Figs. 674-693. *Zynzus*. 674, Forewing and hindwing of *Z. nigropectus*. 675, Front view of head of *Z. nigropectus*. 676, Dorsal view of head of *Z. nigropectus*. 677, Mandibles of *Z. nigropectus*. 678, Palpi of *Z. nigropectus*. 679, Palpi of *Z. patulus*. 680, Female antenna of *Z. nigropectus*. 681, Male antenna of *Z. nigropectus*. Female sheaths of 682, *Z. magnus*; 683, *Z. nigropectus*; 684, *Z. vargus*; 685, *Z. parvus*; 686, *Z. imus*; 687, *Z. patulus*; 688, *Z. crassulus*; 689, *Z. apulatus*; 690, *Z. menkei*; 691, *Z. himus*; 692, *Z. apicofuscus*. 693, Female lancet of *Z. magnus*.

18. Mesonotum orange; mesosternum usually orange or sometimes partly black (lancet as in Fig. 702; sheath as in Fig. 691) *himus*, new species
 — Mesonotum orange with black marks on prescutum and/or lateral lobes; mesosternum black 19
19. Lancet as in Fig. 703; mesonotum with only prescutum black *dusurus*, new species
 — Lancet as in Fig. 708; mesonotum with prescutum and lateral lobes usually black *jocus* (Smith)
20. Abdomen orange 21
 — Abdomen black 23
21. Thorax black; penis valve long, apex oblong (Fig. 715) *bicolor* (Smith)
 — Thorax black with pronotum and tegula orange; apex of penis valve quadrate (Figs. 711, 712) 22
22. Genitalia as in Fig. 712; mesepimeron black; costa white *magnus* (Smith)
 — Genitalia as in Fig. 711; upper 1/2 of mesepimeron orange; costa brownish to black *nigropectus* (Norton)
23. Pronotum orange (the 3 species here are difficult to separate, all have similar genitalia, Figs. 716, 717, 719, and I have seen only one associated male each of *imus* and *vargus*) *crassulus* (Cameron), *imus* (Smith), *vargus* (Smith)
 — Thorax black, tegula may be pale 24
24. Tibiae and usually basitarsi white, apex of hindtibia may be black 25
 — Hindleg black, some white may be present on fore- and midtibiae 27
25. Penis valve oblong (Fig. 713); tegula black *parvus* (Smith)
 — Penis valve with lateral lobe (Figs. 718, 722); tegula black or white 26
26. Penis valve as in Fig. 718; tegula white *apulatus* (Greenbaum)
 — Penis valve as in Fig. 722; tegula black *menkei*, new species
27. Penis valve with dorsal and ventral lobes (Fig. 714) *patulus* (Smith)
 — Penis valve oblong (Figs. 720, 721) *himus*, new species, *jocus* (Smith)

SPECIES

apicofuscus Smith, new species — Mexico (Sinaloa)*Zynzus apicofuscus* Smith.

Female.—Length, 5.5 mm. Antenna and head black, supraclypeal area may be brownish. Thorax black with upper 1/3 or less of mesepisternum, pronotum, and mesonotum except for black on prescutum and apex of scutellum orange. Legs black with foretibia and tarsus and basal 1/2 of midtibia whitish. Abdomen orange with 1st and 2nd terga, all sterna, apical 2 segments and sheath black. Wings hyaline with apex from base of stigma blackish infuscated; veins and stigma black, costa brownish. Antennal length to head width as 5.8:5.2. Lower interocular distance to eye length as 2.7:2.5; distances between eye and hindocellus, hindocelli, hindocelli and posterior margin of head as 0.9:0.8:0.7. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.7:2.2. Sheath with large leaflike scopae, in dorsal view longer than broad, in lateral view with dorsal and ventral margins straight, meeting at narrowly rounded apex (Fig. 692). Lancet with small ventral teeth, large annular spines, and each annulus from 4 to apex with about 4 spines larger and broader than others (Fig. 697).

Male.—Unknown.

Holotype.—E. "Mazatlan, Mexico, Sinaloa State, II-28-67, E. Ball Jr. and A. T. Barnes, colls." (Washington).

Paratype.—MEXICO: Mazatlan, Sinaloa, 7-18-59, H. E. Evans (1 E) (Ithaca).

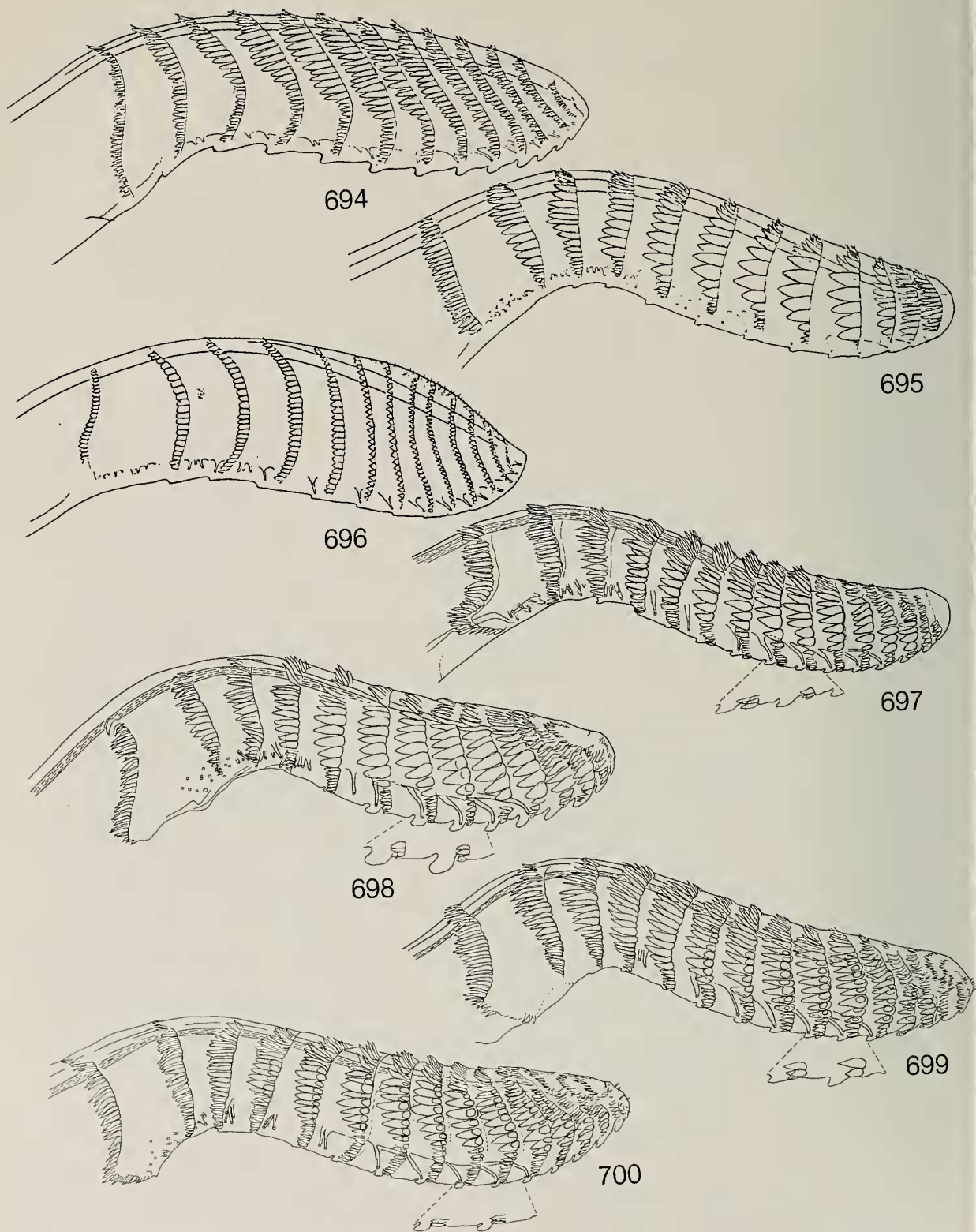
Remarks.—The apical infuscation of the wings, unknown in other *Zynzus* species, coloration, and lancet as figured will separate *apicofuscus*.

apulatus (Greenbaum), new combination —

Mexico (Chihuahua, Jalisco, Queretero, San Luis Potosi, Sonora); U.S.A. (Arizona)

Ptenus apulatus Greenbaum 1974: 423-425, fig. 2, 4, 6. E. "Molino Basin, Santa Catalina Mts., Pima County, Arizona, 4600 ft." (Gainesville, E).—Smith 1979: 24.

I have seen specimens from the following Mexican localities: 4 mi W Manzamitla, Jalisco, 6800'; pine forest, 7 mi S Manzamitla; Buena Vista, Chihuahua; 19 mi S Parrita, Chihuahua; Tepatitlan, Jalisco; Sonora, 14 mi N Guaymas.



Figs. 694-700. *Zynzus*, female lancets. 694, *Z. parvus*; 695, *Z. nigropectus*; 696, *Z. vargus*; 697, *Z. apicofuscus*; 698, *Z. townesi*; 699, *Z. usirus*; 700, *Z. retus*.

bicolor (Smith), **new combination** — Mexico (Nuevo Leon, San Luis Potosi, Tamaulipas, Veracruz); U.S.A. (Texas)

**Ptenus bicolor* Smith 1970: 82, 83-84, fig. 26, 33, 37. F, M. "Laredo, Texas" (Washington, F) (host a).— Smith 1972: 176, 178-179, fig. 34-38 (larva; host a).— Greenbaum 1975: 165 (Nuevo Leon, San Luis Potosi, Tamaulipas, Veracruz).— Smith 1979: 24 (host a).

Host: a) *Acacia farnesiana* (Leguminosae)

I have seen specimens from the following Mexican localities: Monterrey, N.L.; Matamoros, Tamaulipas; Pujal, S.L.P.; Playa Altamira, Tamaulipas; El Limon, Tamaulipas; San Fernando, Tamaulipas; San Ignacio, Linares, N.L.

crassulus (Cameron), **new combination** — Mexico (Baja California Norte, Baja California Sur, Coahuila, Oaxaca, Nuevo Leon, San Luis Potosi, Sonora, Tamaulipas, Zacatecas); U.S.A. (Arizona, California, New Mexico, Texas)

**Ptilia crassula* Cameron 1884: 484-485. F. "Northern Sonora, Mexico" (London, F).— Dalla Torre 1894: 319.— Cameron 1899: 468, pl. 20, fig. 18.— Konow 1905a: 26.

Ptenus crassulus: Smith 1980: 482 (syn.: *nigerrima* Cameron, *modestius* Smith)

**Ptilia nigerrima* Cameron 1884: 485. M. "Northern Sonora, Mexico" (London, M).— Dalla Torre 1894: 320.— Cameron 1899: 469, pl. 20, fig. 19.— Konow 1905a: 27.

**Ptenus modestius* Smith 1970: 82, 88, 90-91, fig. 16, 17, 25, 29, 38. F, M. "Continental, Arizona" (Washington, F) (Ariz., Calif., Tex.; adults collected from mesquite).— Greenbaum 1975: 165 (distribution; Tamaulipas).— Smith 1979: 24.

Host: Specimens from Tamaulipas were "taken from *Prosopis laevigatus*." Other adults were collected from mesquite (Smith, 1970), and I have seen collection records from *Larrea tridentata* from Mexicali, Mexico.

The holotype of *crassula* is BM #1.134, and that of *nigerrima* is BM #1.136. I have seen specimens from the following Mexican states: Sonora, Coahuila, Nuevo Leon, Baja California Norte, Baja California Sur, San Luis Potosi, Oaxaca, Zacatecas, and Tamaulipas.

dusurus Smith, **new species** — Mexico (Michoacán)

Zynzus dusurus Smith.

Female.—Length, 7.3 mm. Antenna and head black. Thorax orange with large triangular spot on mesoprescutum, mesoscutellum, and cervical sclerites black. Legs black with foretibia and tarsus whitish. Abdomen orange, sheath black. Wings very lightly uniformly infuscated blackish; veins and stigma black. Antennal length to head width as 6.0:5.3. Lower interocular distance to eye length as 2.9:2.5; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:1.0:1.0. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.7:2.6. Sheath with short scopae, from above broader than long, in lateral view short and rounded at apex near dorsal margin (similar to *crassula*, Fig. 688). Lancet triangular, apical serrulae long and pointed, each with 3 or 4 fine posterior subbasal teeth, annular spines short and triangular, 4th annulus with about 12 spines (Fig. 703).

Male.—Unknown.

Holotype.—F, "4 mi E Morelia, Mich., Mex., VII-9'59, 6500', H. E. Evans" (Ithaca).

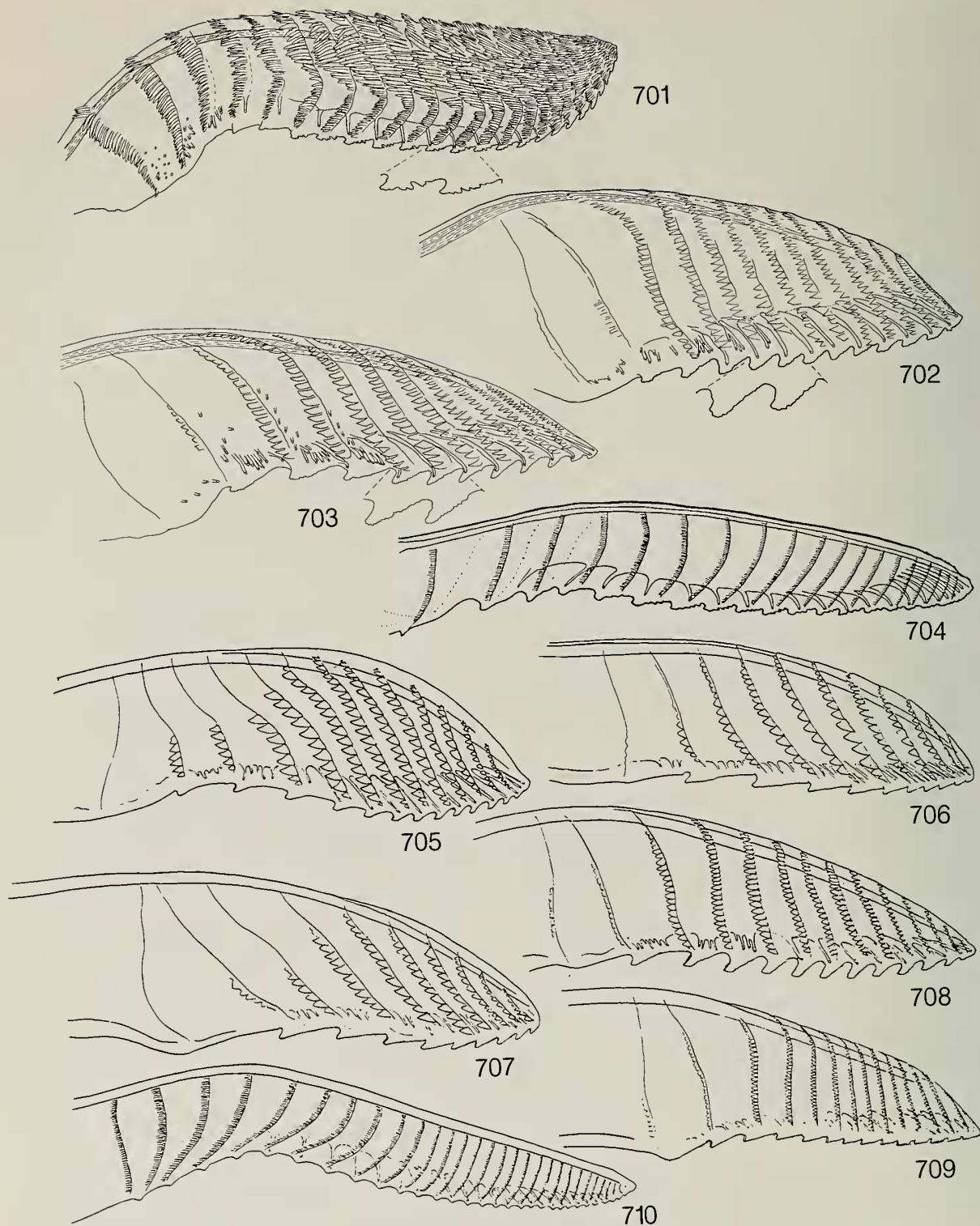
Remarks.—The lancet is similar to that of *jocus* (Fig. 708), but the annular spines are larger and fewer in number in *dusurus*. The fourth annulus of *jocus* has about 18 spines.

himus Smith, **new species** — Mexico (Nayarit, Sonora)

Zynzus himus Smith.

Female.—Length, 5.0-5.4 mm. Antenna and head black, clypeus and supraclypeal area brownish. Thorax orange, only anterior margin of cervical sclerites black. Legs black with fore- and midtibiae and tarsi whitish. Abdomen orange, sheath black. Wings lightly uniformly infuscated blackish; veins and stigma black. Antennal length to head width as 4.0:4.0. Lower interocular distance to eye length as 2.3:1.8; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.7:0.7:0.6. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.0:1.7. Sheath with short scopae, in dorsal view broader than long, in lateral view short, rounded at apex near dorsal margin (Fig. 691). Lancet with short, triangular annular spines, spines on full length of annuli from 3rd to apex of lancet; serrulae moderately deep, each with 3 or 4 fine posterior subbasal teeth (Fig. 702).

Male.—Length, 4.7-5.0 mm. Black with foretibia and foretarsus whitish and apical margins of abdominal



Figs. 701-710. *Zynzus*, female lancets. 701, *Z. menkei*; 702, *Z. himus*; 703, *Z. dusurus*; 704, *Z. apulatus*; 705, *Z. imus*; 706, *Z. crassulus*; 707, *Z. bicolor*; 708, *Z. jocus*; 709, *Z. luteiventris*; 710, *Z. patulus*.

segments narrowly whitish; pronotum sometimes brownish. Antennal length to head width as 4.8:3.8. Genitalia as in Fig. 720.

Holotype.—E, "5 mi S Santa Ana, Son., Mex., VIII-14-1964, H. R. Burke and J. Apperson" (College Station).

Paratypes.—MEXICO: Same data as for holotype (1 E); El Oasis, Sonora, July 17, 1954, M. Cazier, W. Gertsch, Bradts (10 E, 5 M); Concordia, Sinaloa, VII-4-1963, F.D. Parker, L. A. Stange (10 E, 3 M); 14 mi. N. Rosario, Sinaloa, Oct. 1, 1950, Ray F. Smith (1 E); 5 mi. S. Mazatlan, Sinaloa, VIII-3-1953, D. Rockefeller Mex. Exp. 1953, C. & P. Vaurie (1 E); 20 mi. S. of Acaponeta, Nayarit, Sept. 2, 1957, J. C. Schaffner (1 E); 50 mi. N. of Mazatlan, Sinaloa, Sept. 5, 1957, J. C. Schaffner (1 M) (Ames, New York, Berkeley, Washington).

Remarks.—This species is very similar to *bicolor*, and almost identical in coloration. The lancet of *himus* differs from that of *bicolor* (Fig. 707) by the deeper serrulae and presence of annular spines on the full length of the third annulus to the apex of the lancet.

imus (Smith), **new combination** — Mexico (Tamaulipas); U.S.A. (Texas)

**Ptenus imus* Smith 1970: 82, 84, 86, fig. 10, 11, 24. E. "Laredo, Texas" (Washington, E).—Greenbaum 1975: 165 (distribution).—Smith 1979: 24.

I have seen a specimen from 7 mi S Antiguo Morelos, Tamaulipas, Mexico.

jocus (Smith), **new combination** — Mexico (Chihuahua, Puebla, Sinaloa, Sonora); U.S.A. (Arizona).

**Ptenus jocus* Smith 1970: 82, 86, fig. 27. E. "W. sl. Patagonia Mts., on Lochiel Rd., Sta. Cruz Co., Arizona, 5330', mesquite-chaparral" (Washington, E).—Smith 1979: 24.

Host: A series from Cochise Co., Arizona, SE Huachuca Mtns, Ash Canyon Road, 5100', was reared from larvae feeding on *Mimosa grahami* (Leguminosae) by Noel McFarland of Sierra Vista, Arizona.

I have seen specimens from Alamos, Sonora; 10 mi. W. Alamos, Sonora; Sta. Barbara, 6200', Chihuahua; 3 mi. N. Petalcingo, Puebla; and Chupaderos, Sinaloa.

luteiventris (Cameron), **new combination** — Mexico (Sonora); U.S.A. (Arizona)

**Ptilia luteiventris* Cameron 1884: 485. E. "Northern Sonora, Mexico" (London, E).—Dalla Torre 1894: 320.—Cameron 1899: 468.—Konow 1905a: 27.

Ptenus luteiventris: Smith 1980: 482 (syn.: *torridus* Smith).

**Ptenus torridus* Smith 1970: 82, 96, fig. 28. E. "Canelo, Arizona" (Washington, E).—Smith 1979: 24.

The holotype of *luteiventris* is BM #1.135.

magnus (Smith), **new combination** — Mexico (Chihuahua, Jalisco, Michoacán, San Luis Potosi, Sinaloa); U.S.A. (Arizona, New Mexico, Texas)

**Ptenus magnus* Smith 1970: 81, 82, 86-88, fig. 6, 7, 20, 36. E, M. "2 mi. W. Sonoita, Arizona" (Washington, E).—Greenbaum 1975: 165 (distribution).—Smith 1979: 24.

Host: A specimen from New Mexico was taken "on *Asclepias* sp."

I have seen specimens from the following Mexican localities: Valles, S.L.P.; Cotija, Mich.; Tecolotan, Jalisco; 4 mi NW Choix, Sinaloa; Santo Nino, Chihuahua.

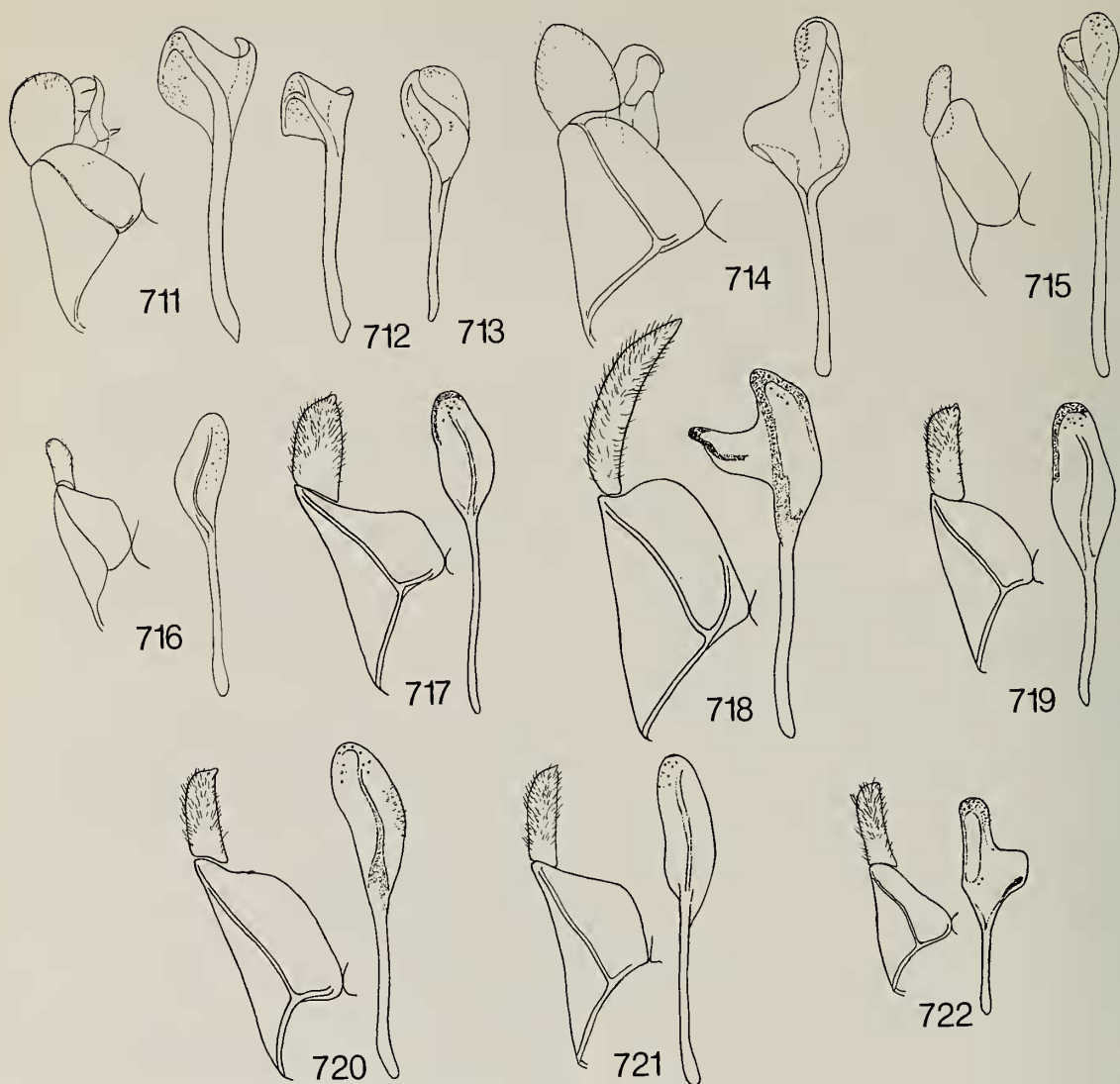
menkei Smith, **new species** — Mexico (Sinaloa); U.S.A. (Arizona)

Zynzus menkei Smith.

Female.—Length, 8.5-8.8 mm. Black, only foretibia, forebasitarsus, outer surface of midtibia, and basal 1/4 hindtibia whitish. Wings hyaline; veins and stigma black. Antennal length to head width as 7.2:5.8. Lower interocular distance to eye length as 3.0:2.8; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 1.0:1.0:0.9. Length of hindtasitarsus to length of remaining tarsal segments combined as 2.0:2.6. Sheath with large scopae and large stout inner spines, from above a little longer than broad, in lateral view broadly rounded (Fig. 690). Lancet with numerous, slender annular spines; each serrula with 3 or 4 posterior subbasal teeth (Fig. 701).

Male.—Length, 6.0-6.7 mm. Black with palpi, foretibia, foretarsus, mid- and hindtibiae (except black line on inner surfaces), and extreme base of mid- and hindbasitarsi white. Antennal length to head width as 6.8:5.1. Genitalia as in Fig. 722.

Holotype.—E, "Ariz., Pima Co., Madera Cyn, 4400 ft., Sta. Rita Mtns., Aug. 1-2, 1975, Menke and Pulawski" (Washington).



Figs. 711-722. *Zynzus*, male genitalia. 711, *Z. nigropectus*; 712, *Z. magnus*; 713, *Z. parvus*; 714, *Z. patulus*; 715, *Z. bicolor*; 716, *Z. crassulus*; 717, *Z. vargus*; 718, *Z. apulatus*; 719, *Z. imus*; 720, *Z. himus*; 721, *Z. jocus*; 722, *Z. menkei*.

Paratypes.— U.S.A.: Arizona, same data as for holotype (1 E); Sta. Cruz Co., Madera Canyon, VIII-21-1981, R. Davidson, Malaise Trap (1 E, 1 M), same data, VIII-20-1981 (1 M). MEXICO: 4 mi NW Choix, Sin., VIII-31-1968, T. A. Sears, R. C. Gardner, C. S. Glaser (1 E, 1 M) (Berkeley, Washington).

Other specimens.— MEXICO: 4 mi NW Choix, Sin., 1-IX-1968, T. A. Sears, R. C. Gardner, C. S. Glaser (3 M); same data, VIII-29-1968 (1 M); 5.5 mi NW Choix, Sin., IX-5-1968, same collectors (3 M).

Remarks.— The coloration and sheath shape of *menkei* are very similar to *patulus* (Fig. 687), but the sheath of *menkei* is more rounded in lateral view, the lancet has numerous slender spines on each annulus, and each serrula has several coarse posterior subbasal teeth. The other specimens listed are unassociated males which are difficult to identify. They agree with the single paratype male.

nigropectus (Norton), **new combination** — Mexico (Nuevo Leon, San Luis Potosi, Tamaulipas, Veracruz); U.S.A. (Arkansas, Louisiana, Mississippi, Oklahoma, Texas)

**Ptenos nigropectus* Norton 1872: 77. E. "Texas" (Philadelphia, E).— Cresson 1880: 36 (*nigripectus*).— Dalla Torre 1894: 324 (*nigripectus*).— Konow 1904: 239 (*nigripectus*).— Konow 1906b: 183 (*nigripectus*).— Forsius 1925a: 5.— Cresson 1928: 8 (holotype).

Ptenus nigropectus: Kirby 1882: 54.— Konow 1905a: 26 (*nigripectus*).— Ross 1951: 16.— Smith 1970: 81, 82, 91-92, fig. 1-3, 5, 22, 35, 39 (E, M described; host a).— Greenbaum 1975: 165 (distribution; Nuevo Leon, Veracruz).— Smith 1979: 24 (hosts b?, c).

Ptenellus nigripectus (!): Malaise 1937a: 56.

Hosts: a) *Desmanthus illinoensis*; b) *Desmanthus* sp.; c) *Acacia angustissima* (Leguminosae).

I have seen specimens from the following Mexican localities: C. Victoria, Tamps.; Vallecillo, 102± km S Laredo; 1 mi S. Cd. Valles, S.L.P.; 6 mi N Manuel, Tamps.; 13 mi N. Cienaga de Flores, N.L.; 2 mi E Ciudad Manto, Tamps.; 29 mi S. Cd. Victoria, Tamps.; and 3.7 mi. fr. Montemorelos, N.L.

parvus (Smith), **new combination** — Mexico (Sonora); U.S.A. (Arizona, Texas)

**Ptenus parvus* Smith 1970: 81, 83, 92, 94, fig. 9, 21, 30. E, M. "Arizona, Cochise Co., 3 mi. W. Portal" (Washington, E) (specimens swept from *Acacia*).— Greenbaum 1975: 166 (distribution).— Smith 1979: 24.

I have seen specimens from 4 mi S Hermosillo, Sonora.

patulus (Smith), **new combination** — Mexico (Baja California Sur); U.S.A. (Arizona)

**Ptenus patulus* Smith 1970: 82, 83, 94, fig. 12, 13, 19, 34, 40. E, M. "Sonoita, Arizona, Pima Co., about 5000 ft." (Washington, E).— Smith 1979: 24.

I have seen specimens from Baja California Sur: La Laguna, 1675-1725 m, Sierra de La Laguna.

retus Smith, **new species** — Mexico (Veracruz)

Zynzus retus Smith.

Female.— Length, 6.0 mm. Black, pronotum and mesonotum orange with very small black spot on mesal area of pronotum and anterior margin of mesoprescutum. Wings uniformly moderately infuscated black; veins and stigma black. Antennal length to head width as 6.0:4.8. Lower interocular distance to eye length as 2.4:2.2; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.9:0.8:0.7. Length of hindbasitarsus to length of remaining tarsal segments combined as 2.0:2.8. Sheath with large leaflike scopae, in dorsal view longer than broad, in lateral view with dorsal margin straight and slanting downward, meeting ventral margin at narrowly rounded apex (similar to *nigropectus*, Fig. 683). Lancet clublike, serrulae small, with large annular spines, segments 4 to apex with about 6 large broad spines on each annulus and with large spines distant from ventral margin of lancet (Fig. 700).

Male.— Unknown.

Holotype.— E, "Orizaba, Ver., Mex., 8/12-22/61, R. and K. Dreisbach" (Champaign).

Paratype.— MEXICO: Tequesquitengo, Mor., 7-15-61, R. & K. Dreisbach (1 E) (East Lansing).

Remarks.— The black coloration with the pronotum and mesonotum orange and lancet as figured will separate *retus* from other species of *Zynzus*.

townesi Smith, **new species** — Mexico (San Luis Potosi)

Zynzus townesi Smith.

Female.— Length, 5.5 mm. Black with upper 1/2 of mesepisternum, pronotum, and mesonotum orange; foretibia whitish. Wings uniformly blackish infuscated, veins and stigma black. Antennal length to head width as 6.8:4.1. Lower interocular distance to eye length as 3.8:3.2; distances between eye and hindocellus,

hindocelli, and hindocelli and posterior margin of head as 1.0:0.8:0.7. Sheath with large leaflike scopae, in dorsal view longer than broad, in lateral view with dorsal margin straight, slanted downward, and meeting ventral margin at narrowly rounded apex (similar to *nigropectus*, Fig. 683). Lancet short and clublike, with rather deep serrulae and with large spinelike lateral armature, segments 4 to apex with 6 or 7 spines on each annulus much larger and broader than others (Fig. 698).

Male.—Unknown.

Holotype.—E, "nr. El Naranjo, 64 km. W. N. Morelos, S.L.P., Mex., X.7.62, Oak For., H. and M. Townes" (Townes Coll.).

Remarks.—The coloration which is black with only parts of the thorax orange and the lancet which has large annular spines and relatively deep serrulae are diagnostic for *townesi* and will separate it from other species of *Zynzus*.

usirus Smith, new species — Mexico (Sonora)

Zynzus usirus Smith.

Female.—Length, 6.8 mm. Antenna and head black. Thorax black with pronotum, tegula, lateral margins of mesoprescutum, and most of mesonotal lateral lobes except for posterior margins orange. Legs black with foretibia and tarsus whitish. Abdomen black dorsally and at apex with terga laterally and sterna orange. Wings uniformly lightly blackish infuscated; veins and stigma black. Antennal length to head width as 4.8:4.5. Lower interocular distance to eye length as 2.5:2.3; distances between eye and hindocellus, hindocelli, and hindocelli and posterior margin of head as 0.9:0.8:0.8. Length of hindbasitarsus to length of remaining tarsal segments combined as 1.6:2.5. Sheath with large leaflike scopae, in dorsal view longer than broad, in lateral view with dorsal margin straight and slanting downward to broadly rounded apex (similar to *nigropectus*, Fig. 683). Lancet short, clublike, with low serrulae and large annular spines, each annulus from 4 to apex with about 6 spines larger and broader than others (Fig. 699).

Male.—Unknown.

Holotype.—E, "Mex., Sonora, 9 mi. SE of Vicam, 11-VIII-1960, P. H. Arnaud, Jr., E. S. Ross, D. C. Rentz" (San Francisco).

Remarks.—The sheath and lancet resemble other *Zynzus* species that have a large scopa that slants downward, but the sheath is more rounded at its apex in *usirus*. The coloration and lancet also differ from other species of *Zynzus*.

vargus (Smith), new combination — Mexico
(Nuevo Leon, San Luis Potosi, Tamaulipas)

**Ptenus vargus* Smith 1970: 81, 98-99, fig. 8, 23. E. "Mexico (Brownsville, Tex. POE [Port of Entry]" (Washington, E).—Greenbaum 1975: 166 (distribution; Nuevo Leon, San Luis Potosi).—Smith 1979: 24.

I have seen specimens from the following Mexican localities: 23 mi S Linares, Tamps.; 20 mi S Montamorelos, N.L.; 7.5 mi S Monterrey, N.L.; 5 mi S Linares, N.L.

UNPLACED TAXA OF ARGIDAE

UNPLACED GENERA

The type species of the following genera have not been located and it is impossible to place the genera from their descriptions.

Gymniopterus Ashmead 1898: 213. Type species:
Gymniopterus singularis Ashmead. Orig. desig.

Nematoneura André 1881: 576-577. Type species:
Nematoneura violaceipennis André. Monotypic.

UNPLACED SPECIES

Types of the following species have not been located. It is impossible to place them from their original descriptions.

Schyzocera axillaris Spinola 1840: 150-152. E. "Cayenne".

Gymnia axillaris: Kirby 1882: 43.—Dalla Torre 1894: 318.—Konow 1905a: 27.

Hylotoma josephi Konow 1884: 278. "Corfu".—Dalla Torre 1894: 337 (as syn. of *melanopyga* Klug).

Arge josephi: Konow 1887: 26 (Bogota?).

This may not be neotropical, but Konow (1887) indicated that it may be from Bogota (Colombia).

Hylotoma (*Schizocera*) *nasicornis* Curtis 1844: 254-255. M. No locality.

Ptilia nasicornis: Kirby 1882: 47.—Dalla Torre 1894: 320 (Brazil).—Konow 1905a: 27.

In the original description, Curtis stated "head with 2 elevated lines arising at outer ocella and forming an elongated triangle terminating in little tooth or horn between antenna" and "forewing with large marginal cell and small elongate apical one." These characters may apply to a species of *Scobina*, all of which have

sharp carinae on the head similar to the "elongated triangle" of Curtis.

Hylotoma (Schizocera) ochrostigma Curtis 1844: 255. M. No locality.

Ptilia ochrostigma: Kirby 1882: 45.— Dalla Torre 1894: 320 (Brazil).— Konow 1905a: 27.

The description is mostly color, but one character of the forewing is mentioned in the original description: "with one marginal cell terminated by a triangular one." This is possibly like the forewing of *Neurogymnia* (Fig. 144).

Gymniopterus singularis Ashmead 1898:213. No locality.

Gymnia tibialis Spinola 1851:7-8. F. "Para".—Kirby 1882: 42 (*Trailia compressicornis* Cameron a syn.).—Dalla Torre 1894:318.

Sericoceros tibialis: Konow 1905a:28.

Nematoneura violaceipennis André 1881: 577. "Caucase".— Kirby 1882: 316 (Caucasus).— Konow 1890: 244 (listed; "Ca.").— Dalla Torre 1894: 316 (Caucasus).— Konow 1905a: 24 (Caucasus).— Malaise 1937a: 50 (S. Amer.; type probably labeled "R. Cauca", André possibly mistook for Rio Cauca, Colombia; type examined and appears to be South American).

Malaise stated that he examined the type at Leningrad; however, a search for the type by A. Zinovjev was unsuccessful (Zinovjev, personal correspondence).

ACKNOWLEDGMENTS

Acknowledgments are given in the first paper in this series (Smith, 1988) and several additional ones in the second part (Smith, 1990). I once again thank all who so kindly provided specimens. In addition, I extend my appreciation to Noel McFarland, Sierra Vista, Arizona, for providing host data and biological information on several species; D.H. Janzen, University of Pennsylvania, Philadelphia, for providing specimens from Santa Rosa National Park, Costa Rica, and for host data for a number of species occurring there; and the following for providing additional specimens and information: M.A. Ivie, Montana State University, Bozeman; J. E. Rawlins, Carnegie Museum of Natural History, Pittsburgh, Pennsylvania; Diomedes Quintero, Museo de Invertebrados G.B. Fairchild, Universidad de Panama,

Panama (Panama); Mario Elgueta D., Museo Nacional de Historia Natural, Santiago, Chile (Mus. Nac., Santiago); Jean-Michael Maes, Museo Entomologico, Leon, Nicaragua; and Paul Hanson, Universidad de Costa Rica, San José.

Linda Lawrence and Mary Lou Cooley, staff artists, Systematic Entomology Laboratory, U. S. Department of Agriculture, Washington, D.C., my wife, J. L. Smith, and Eleanor Holland, volunteer artist with the Systematic Entomology Laboratory, prepared many of the illustrations of female lancets.

I thank the following for their time and effort in reviewing this manuscript: Henri Goulet, Biosystematics Research Centre, Agriculture Canada, Ottawa; W.W. Middlekauff, University of California, Berkeley; and R.L. Smiley and E.E. Grissell, Systematic Entomology Laboratory, USDA, Beltsville, Maryland, and Washington, D.C.

LITERATURE CITED

- André, E. 1879-1882. Species des Hyménoptères d'Europe & d'Algérie. Vol. 1. Beaune (Côte-d'Or). 642 pp.
- Ashmead, W. H. 1895. Some parasitic Hymenoptera from Baja California and Tepic, Mexico. *Proc. Calif. Acad. Sci.* (2) 5: 539-555.
- Ashmead, W. H. 1898. Classification of the horn-tails and sawflies, or the suborder Phytophaga. *Can. Entomol.* 30: 205-213.
- Ashmead, W. H. 1900a. Hymenoptera. In Smith, J.B., *Insects of New Jersey*. 27th Ann. Rep. of St. Bd. of Agric., suppl. 1899. Trenton, N.J. 755 pp.
- Ashmead, W. H. 1900b. VI. Report upon the Aculeate Hymenoptera of the islands of St. Vincent and Grenada, with additions to the parasitic Hymenoptera and a list of the described Hymenoptera of the West Indies. *Trans. Entomol. Soc. Lond.*, pt. II, pp. 207-367.
- Benson, R. B. 1930a. Sawflies collected by the Oxford University Expedition to British Guiana, 1929. *Ann. Mag. Nat. Hist.* (10)6: 620-621.
- Benson, R. B. 1930b. Nine sawflies requiring new names. *Entomologist* 63: 107.
- Benson, R. B. 1938. On the classification of sawflies (Hymenoptera, Symphyta). *Trans. R. Entomol. Soc. Lond.* 87: 353-384.
- Benson, R. B. 1963 (1962). The affinities of the Australia Argidae. *Ann. Mag. Nat. Hist.* (13) 5: 631-635.
- Bischoff, H. 1927. *Biologie der Hymenopteren eine Naturgeschichte der Hautflügler*. Berlin. 598 pp.
- Blanchard, E. 1840. *Histoire Naturelle des Animaux Articulés, annélides, crustacés, arachnides, myriapodes et insectes*. Vol. 3. Paris.
- Brèthes, J. 1927. Hyménoptères Süd-Américains du Deutsches Entomologisches Institut: Terebrantia. *Entomol. Mitt.* 16: 319-335.

- Brullé, A. 1846. Hyménoptères. In Lepeletier, A. L. M., Histoire Naturelle des Insectes, Hyménoptères, Vol. 4, 689 pp.
- Burks, B. D. 1967. Symphyta, pp. 4-27. In Krombein, K. V. and B. D. Burks, eds. Hymenoptera of America North of Mexico, Synoptic Catalog. U. S. Dept. Agric., Agric. Monogr. 2, Suppl. No. 2. 584 pp.
- Cameron, P. 1878. On some new genera and species of Tenthredinidae. Trans. Entomol. Soc. Lond.: 141-152.
- Cameron, P. 1883-1900. Hymenoptera, Tenthredinidae - Chrysididae. In Godman & Salvin, Biologia Centrali-Americana, Vol. 1, 486 pp. (Symphyta, 1883, pp. 1-70; supplement, 1899, pp. 467-469.)
- Cameron, P. 1884. Descriptions of new species of Tenthredinidae and Cynipidae from Mexico. Trans. Entomol. Soc. London., pt. III, pp. 481-488.
- Clement, S. L. and R. F. Norris. 1982. Two insects offer potential biological control of common purslane. Calif. Agric., March-April, pp. 16-18.
- Cockerell, T.D.A. 1895. A new sawfly which is injurious to hollyhocks. Insect Life 7: 251-253.
- Cresson, E. T. 1880. Descriptions of new North American Hymenoptera in the collection of the American Entomological Society. Trans. Am. Ent. Soc. 8: 1-52.
- Cresson, E. T. 1916. The Cresson types of Hymenoptera. Mem. Amer. Ent. Soc. No. 1, 141 pp.
- Cresson, E. T. 1928. The types of Hymenoptera in the Academy of Natural Sciences of Philadelphia other than those of Ezra T. Cresson. Mem. Am. Ent. Soc. No. 5, 90 pp.
- Curtis, J. 1844. Description of the nests of two Hymenopterous insects inhabiting Brazil, and of the species by which they were constructed. Trans. Linn. Soc. Lond. 19: 249-259.
- Dalla Torre, C. G. 1894. Catalogus Hymenopterorum, Vol. 1, Tenthredinidae incl. Uroceridae (Phyllophaga & Xylophaga). Lipsiae. 459 pp.
- Dewitz, H. 1881. Hymenopteren von Portorico. Berlin Entomol. Z. 25: 197-208.
- Dias, B. F. de Souza. 1975. Comportamento pre-Social de Sinfitas do Brasil Central. I. *Themos olfersii* (Klug) (Hym. Argidae). Studia Ent. 18: 401-432.
- Dias, B. F. de Souza. 1976. Comportamento pre-Social de Sinfitas do Brasil Central. II. *Diolocerus diasi* Smith, 1975 (Hymenoptera, Argidae). Studia Entomol. 19: 461-505.
- Dyar, H. G. 1893. Notes on two species of Tenthredinidae, from Yosemite, Cal. Can. Entomol. 25: 195-196.
- Dyar, H. G. 1900. On the larvae of *Atomacera* and some other saw-flies. J. N. Y. Entomol. Soc. 8: 26-31.
- Enderlein, G. 1919. Symphytologica I. Zur Kenntnis der Oryssiden und Tenthrediniden. Sitz. Gesell. naturf. Freunde Berlin No. 9: 111-127.
- Erichson, W. F. 1848. Insekten, pp. 553-617. In Schomburgk, R., Reisen in British Guiana in dem Jahre 1840-1844. Vol. 3. Leipzig. Pp. 533-1260.
- Fabricius, J. C. 1793. Entomologia Systematica . . . Vol. 2. Hafniae. 514 pp.
- Fabricius, J. C. 1804. Systema Piezatorum . . . Brunsvigae. 439 pp.
- Force, D.C. 1965. The purslane sawfly in central California. Bull. Calif. Dept. Agric. 54(3): 157-160.
- Forsius, R. 1925a. Wissenschaftliche Ergebnisse der Schwedischen Entomologischen Reise des Herrn Dr. A. Roman in Amazonas 1914-1915. II. Hymenoptera: Tenthredinoidea und Orysoidea. Ark. Zool. 17A: 1-27.
- Forsius, R. 1925b. Kleinere Mitteilungen über Tenthrediniden IV. Not. Entomol. 5: 107-111.
- Forsius, R. 1927. An interesting new genus of Arginae from the Australian Region (Hym., Tenth.). Not. Entomol. 7: 18-22.
- Forsius, R. 1931. Notes on a collection of Ethiopian Orysoidea and Tenthredinoidea (Insecta: Hymenoptera). Ann. Mag. Nat. Hist. (10) 8: 1-36.
- Forsius, R. 1934. New or little known Tenthredinoidea I. Not. Ent. 14: 45-52.
- Frison, T. H. 1927. A list of the insect types in the collection of the Illinois State Natural History Survey and the University of Illinois. Bull. Ill. Nat. Hist. Survey 16: 137-309.
- Frost, S. W. 1925. The leaf-mining habit in the Hymenoptera. Ann. Entomol. Soc. Amer. 28: 399-414.
- Garlick, W. G. 1922. Concerning the feeding habits of the purslane sawfly larva. Can. Entomol. 54: 240.
- Gorske, S. F. and H. J. Hopen. 1976. Purslane sawfly (*Schizocerella pilicornis*: As a biological control agent of common purslane (*Portulaca oleracea* L.). HortScience 11: 326.
- Gorske, S. F. and H. J. Hopen. 1978. Case of the purslane sawfly for biological control of *Portulaca oleracea* and *Montia perfoliata*. Amer. Veg. Growers 26: 14-15.
- Gorske, S.F., H.J. Hopen, and R. Randell. 1976. Host specificity of the purslane sawfly and its response to selected pesticides. HortScience 11: 580-582.
- Gorske, S.F., H.J. Hopen, and R. Randell. 1977a. Bionomics of the purslane sawfly, *Schizocerella pilicornis*. Ann. Entomol. Soc. Amer. 70: 104-106.
- Gorske, S.F., H.J. Hopen, and R. Randell. 1977b. Purslane sawfly, *Schizocerella pilicornis*, *Portulaca oleracea*, biological control. Ill. Res. 19: 6-7.
- Gorske, S.F., H.J. Hopen, and R. Randell. 1978. Purslane sawfly *Schizocerella pilicornis* - a control for purslane. Florists Rev. 163: 73-76.
- Gorske, S. F. and J. V. Maddox. 1978. A microsporidium, *Nosema pilicornis* sp. n. of the purslane sawfly *Schizocerella pilicornis*. J. Invert. Path. 32: 235-243.
- Gorske, S.F. and D. K. Sell. 1976. Genetic differences among purslane sawfly biotypes. Heredity 67: 271-274.
- Gray, G. 1832. Notices of new genera and species. In Griffith, E., The Animal Kingdom arranged in conformity with its organization, by the Baron Cuvier, with supplementary additions to each order. Vol. 15, Insects Vol. 2. London.
- Greenbaum, H. N. 1974. A new species of *Ptenus* Kirby from Arizona (Hymenoptera: Argidae). Pan-Pac. Entomol. 50: 423-425.
- Greenbaum, H. N. 1975. Additional distribution records for nearctic species of *Ptenus* Kirby (Hymenoptera: Argidae: Sterictiphorinae). Pan-Pac. Entomol. 51: 165-166.

- Holmgren, A. E. 1868. Kongliga Svenska Fregatten *Eugenie* resa Omkring Jorden under befäl af C. A. Virgin åren 1851-1853. Zoologi. VI, Insekten, pp. 391-614. Stockholm.
- Hobby, B.M. 1937. A note on the hind-wings of a sawfly, leaf-hopper and moth. Proc. R. Entomol. Soc. London 12: 72-74.
- International Commission on Zoological Nomenclature. 1936. Opinion 135.
- Jørgensen, P. 1913. Las Tenthredinoidea (Hym.) de la Republica Argentina. Ann. Mus. Nac. Hist. Nat. B. Aires 24: 247-288. (October)
- Jurine, L. 1801. Nachricht von einem novem entomologischen Werke, des Hrn. Prof. Jurine in Genève. Erlangen, Intell. Litt.-Zeitung. 1: 162-163.
- Kennington, W. 1972. Variations in silk gland morphology among sawfly larvae (Hymenoptera: Symphyta). J. Entomol. (A) 46: 111-116.
- Kimsey, L. S. and D. R. Smith. 1985. Two new species, larval descriptions and life history notes of some Panamanian sawflies (Hymenoptera: Argidae, Tenthredinidae). Proc. Entomol. Soc. Wash. 87: 191-201.
- Kirby, W. F. 1882. List of Hymenoptera in the British Museum. Vol. 1, Tenthredinidae and Siricidae. 450 pp.
- Kirby, W. F. 1886. A synopsis of the genera of the Chalcididae, subfamily Eucharinae; with descriptions of several new genera and species of Chalcididae and Tenthredinidae. J. Linn. Soc. 20: 28-37.
- Klug, J. C. F. 1808-1818. Die Blattwespen nach ihren Gattungen und Arten zusammengestellt. Mag. Ges. Naturf. Freunde Berl., pp. 216-283 (1808); pp. 45-62, 276-310 (1814); pp. 120-131 (1816); pp. 42-84, 110-114, 179-219, 273-307 (1818).
- Klug, J. C. F. 1819. Die Blattwespen der Fabricischen Sammlung. Wiedemann's Zool. Mag., Altona 2(3): 64-91.
- Klug, J. C. F. 1834. Uebersicht der Tenthredineten der Sammlung (des Berliner entomologischen Museums). Jb. Insect. 1: 223-253.
- Konow, F.W. 1884. Bemerkungen über Blattwespen. Wien. Entomol. Ztg. 3: 277-281.
- Konow, F.W. 1887. Neue griechische und einige andere Blattwespen. Wien. Entomol. Ztg. 6: 19-28.
- Konow, F.W. 1890. Tenthredinidae Europae. Dt. Entomol. Z. 34: 225-255.
- Konow, F.W. 1899a. Neue Tenthredinidae aus Südamerika. Entomol. Nachr. 25: 307-316.
- Konow, F.W. 1899b. Neue Südamerikanische Tenthredinidae. An. Mus. Nac. Hist. Nat. B. Aires 6: 397-417.
- Konow, F.W. 1899c. Einige neue Chalastogastra-Arten und eine neue Gattung. Entomol. Nachr. 25: 148-155.
- Konow, F.W. 1900. Neuer Beitrag zur Synonymie der Chalastogastra (Hym.). Soc. Entomol. 15: 58-60.
- Konow, F.W. 1901. Neue Chalastogastra-Arten. Természetr. Füzet. 24: 57-72.
- Konow, F.W. 1903. Neue Chalastogastra (Hym.). Z. System. Hym. Dipt. 3: 105-109.
- Konow, F.W. 1904. Uebereine exotischen Tenthrediniden (Hym.). Z. System. Hym. Dipt. 4: 231-248.
- Konow, F.W. 1905a. Fam. Tenthredinidae. In Wytsman, P., ed., Genera Insectorum. Fasc. 29. Bruxelles. 176 pp.
- Konow, F.W. 1905b. Neue exotische Tenthrediniden (Hym.). Z. System. Hym. Dipt. 5: 157-166.
- Konow, F.W. 1906a. Ueber einige Tenthrediniden der alten Welt (Hym.). Z. System. Hym. Dipt. 6: 122-127.
- Konow, F.W. 1906b. Neue mittel- und Südamerikanische Argini (Hym.). Z. System. Hym. Dipt. 6: 177-192, 241-253.
- Konow, F.W. 1906c. Einige synonymische Bemerkungen über Blattwespen. Z. System. Hym. Dipt. 6: 386-388.
- Konow, F.W. 1907a. Systematische Zusammenstellung der bisher bekannt geworden Chalastogastra. Z. System. Hym. Dipt. 7: 177-192, 257-272, 417-432, 481-496.
- Konow, F.W. 1907b. Neue Chalastogastra aus den naturhist. Museen in Hamburg und Madrid. Z. System. Hym. Dipt. 7: 161-174.
- Konow, F.W. 1907c. Drei neue Labidarge-Arten (Hym.). Z. System. Hym. Dipt. 7: 220-221.
- Konow, F.W. 1907d. Neue Argides (Hym.). Z. System. Hym. Dipt. 7: 306-309.
- Konow, F.W. 1907e. Neue Blattwespen (Hym.). Dt. Entomol. Z. 1907: 489-497.
- Konow, F.W. 1908a. Neue mittel- und Südamerikanische Tenthrediniden (Hym.). Z. System. Hym. Dipt. 8: 144-163.
- Konow, F.W. 1908b. Systematische Zusammenstellung der bisher bekannt geworden Chalastogastra. Z. System. Hym. Dipt. 8: 177-192.
- Kriechbaumer, J. 1884. Dr. F. Klug's Gessammelte Aufsätze über Blattwespen. Berlin, 300 pp.
- Labram, J. D. and L. Imhoff. 1836. Insekten der Schweiz. Vol. 1. Basel. 80 plates with text.
- Latreille, P. A. 1802. Histoire Naturelle générale et particulière, des Crustacés et des Insectes. Vol. 3. Paris. 468 pp.
- Lavigne, R. and V. J. Tepedino. 1976. Checklist of the insects of Wyoming. 1. Hymenoptera. Univ. Wyoming Agric. Exp. Sta., Res. J. 106, 61 pp.
- Lepeletier, A. L. M. 1823. Monographia Tenthredinetarum. Paris. 176 pp.
- Lepeletier, A. L. M. and A. Serville. 1828. Tenthred. In Oliver, A.G., ed., Encyclopédie Méthodique Dictionnaire des Insectes, Vol. 10, 832 pp. Paris.
- Lima, A. da Costa. 1927. Sobre o *Dielocerus formosanus* (Klug) (Hymenoptera, Tenthredinoidea). Bol. Biol. (São Paulo) 9: 129-134. (Same article in French, Comptes Rendus des séances de la Soc. Biol. 97: 1366-1367.)
- Lima, A. da Costa. 1937. Uma nova espécie da *Diapetimorpha* (Hymenoptera: Ichneumonidae). Mem. Inst. Oswaldo Cruz 32: 539-541.
- Lima, A. da Costa. 1960. Insetos do Brasil. 11o Tomo. Hymenopteros. 1a Parte. 368 pp.

- MacGillivray, A. D. 1906. A study of the wings of the Tenthredinoidea, a superfamily of Hymenoptera. Proc. U. S. Nat. Mus. 29: 569-654.
- MacGillivray, A. D. 1907. Two new species of Tenthredinoidea. Can. Entomol. 34: 308.
- MacGillivray, A. D. 1909. Two new species of saw-flies. Can. Entomol. 41: 402-404.
- MacGillivray, A. D. 1910. Tenthredinoidea, pp. 579-595. *In* Ann. Rept. for 1909 of the N.J. State Mus. including a Report of the insects of N.J. 880 pp.
- Malaise, R. 1937a. Old and new genera of Arginae (Hymen. Tenthred.). Entomol. Tidskr. 58: 47-59.
- Malaise, R. 1937b. Fabricius' Blattwespen= und Ichneumoniden=Typen. Entomol. Tidskr. 58: 65.
- Malaise, R. 1941. Gattungstabelle der Blattwespen (Hym. Tenth.) der Welt. Entomol. Tidskr. 62: 131-140.
- Malaise, R. 1942. New South American saw=flies (Hym. Tenth.). Entomol. Tidskr. 63: 89-119.
- Malaise, R. 1944. Entomological results from the Swedish expedition 1934 to Burma and British India. Hymenoptera: Tenthredinoidea. Arkiv Zool. 35A: 1-58.
- Malaise, R. 1949. The genera *Waldheimia*, *Probleta*, and other neotropical Tenthredinoidea (Hym.). Arkiv Zool. 42A: 1-61.
- Malaise, R. 1955. New and old South American saw-flies (Hym., Tenthredinidae). Entomol. Tidskr. 76: 99-124.
- Malaise, R. 1957. Some neotropical and Oriental Tenthredinoidea (Hym.). Entomol. Tidskr. 78: 6-22.
- McCallan, E. 1953. Sawflies (Hym., Tenthredinidae and Argidae) from Trinidad, British Guiana and Venezuela. Entomol. Mon. Mag. 89: 126.
- Markovitch, S. 1916. Insects attacking weeds in Minnesota. 16th Rept. State Entomologist Minn., pp. 139-140.
- Martorell, L. F. 1941. Biological notes: on the sea-grape sawfly, *Schizocera krugii* Cresson, in Puerto Rico. Caribbean Forester 2(3): 141-144.
- Maxwell, D. E. 1955. The comparative internal larval anatomy of sawflies (Hymenoptera: Symphyta). Can. Entomol., suppl. 1, 87: 1-132.
- Mocsáry, A. 1909. *Chalastogastra nova* in Collectione Musei Nationalis Hungarici. Annls. Hist.-Nat. Mus. Natn. Hung. 7: 1-39.
- Monte, O. 1941. Identificação de ninho de Himenoptera. O Biologico 7: 145-146.
- Monte, O. 1946. Falsas lagartas. Chacaras e Quintais (São Paulo) 74: 591.
- Moore, K. M. 1966. Observations on some Australian forest insects. 22. Notes on some Australian leaf-miners. Aust. Zool. 13: 303-349.
- Norton, E. 1867-1869. Catalogue of the described Tenthredinidae and Uroceridae of North America. Trans. Amer. Entomol. Soc. 1: 31-84, 193-280 (1867); 2: 211-242 (1868); 2: 321-368 (1869).
- Norton, E. 1872. Notes on North American Tenthredinidae with descriptions of new species. Trans. Amer. Entomol. Soc. 4: 77-86.
- Oehlke, J. and J. Wudowenz. 1984. Katalog der in den Sammlungen der Abteilung Taxonomie der Insekten des Institutes für Pflanzenschutzforschung, Bereich Eberswalde (ehemals Deutsches Entomologisches Institut), aufbewahrten Typen - XXII (Hymenoptera: Symphyta). Beitr. Entomol., Berlin 34: 363-420.
- Parker, H. L., P. A. Berry, and A. S. Guido. 1953. Host-parasite and parasite-host lists of insects reared in the South American parasite laboratory during the period 1940-1946. Montevideo. 101 pp.
- Pasteels, J. 1952. Notules sur les Hyménoptères Symphytes. Bull. Ann. Soc. R. Entomol. Belgique 88: 307-312.
- Perty, M. 1830-1834. Delectus animalium articulatum, quae in itinere per Brasiliam annis MDCCCXVII-MDCCCXX collegerunt Spix et Martius. 220 pp., 40 pls. (Symphyta, 1830, pp. 129-131, tb. 26, fig. 1-7.)
- Provancher, L. 1885-1889. Additions et Corrections au volume II de la faune entomologique de Canada. Quebec. 477 pp.
- Riek, E. F. 1970. Hymenoptera, pp. 867-943. *In* C.S.I.R.O., The Insects of Australia. Melbourne University Press, 1029 pp.
- Rohwer, S. A. 1908. New western Tenthredinidae. J. N. Y. Entomol. Soc. 16: 103-114.
- Rohwer, S. A. 1909. Notes on Tenthredinoidea, with descriptions of new species. Can. Entomol. 41: 9-21.
- Rohwer, S. A. 1911a. The genotypes of the sawflies and woodwasps, or the superfamily Tenthredinoidea. U. S. Bur. Entomol. Tech. Ser. 20: 69-109.
- Rohwer, S. A. 1911b. New sawflies in the collections of the United States National Museum. Proc. U. S. Natl. Mus. 41: 377-411.
- Rohwer, S. A. 1912a. Sawflies from Panama, with descriptions of new genera and species. Smithsonian. Misc. Coll. 59: 1-6.
- Rohwer, S. A. 1912b. The sawflies (Chalastogastra) of Boulder County, Colorado. Univ. Colo. Studies 9: 91-104.
- Rohwer, S. A. 1912c. A new sawfly from Brazil. Psyche 19: 62-63.
- Rohwer, S. A. 1912d. Notes on sawflies, with descriptions of new species. Proc. U. S. Natl. Mus. 43: 205-251.
- Rohwer, S. A. 1918. Notes on and descriptions of some sawflies from the Australian Region. Ann. Mag. Nat. Hist. (9) 2: 433-440.
- Rohwer, S. A. 1926. Suborder Chalastogastra, pp. 871-895. *In* Leonard, M., List of the Insects of New York. Cornell Univ. Exp. Sta. Mem. 101, 1121 pp.
- Ross, H. H. 1937. A generic classification of the Nearctic sawflies (Hymenoptera: Symphyta). Illinois Biol. Monogr. 15, 173 pp.
- Ross, H. H. 1951. Symphyta, pp. 4-89. *In* Muesebeck, C.F.W. et al., eds., Hymenoptera of America north of Mexico, synoptic catalog. U. S. Dept. Agric., Agric. Monogr. 2, 1420 pp.

- Say, T. 1836. Descriptions of new North American Hymenoptera, and observations on some already described. *Boston J. Nat. Hist.* 1(3): 210-305.
- Schrank, F. von P. 1802. *Fauna Boica*. Vol. 2, Pt. 2. Ingolstadt. 412 pp.
- Schrottky, C. 1913. Neue Südamerikanische Hymenopteren. *Dt. Entomol. Ztschr.* 6: 702-708. (November)
- Schulz, W. A. 1906. *Spolia Hymenopterologica*. Paderborn. 355 pp.
- Sichel, O. 1862. Observations Hyménoptérologiques. *Ann. Soc. Entomol. France* (4) 2: 119, 595-596.
- Silva, A. G. d'Araujo et al. 1968. Quarto Catalogo dos insetos que vivem nas plantas do Brasil seus parasitos e predadores. Parte II - 1º tomo, Insetos Hospedieros e Inimigos Naturais, pp. 1-622; parte II - 2º tomo indice de insetos e indice de plantas, pp. 1-265. Min. Agric., Dep. Defesa e Inspecao Agropecuaria. Serv. Defesa San. Vegetal, Lab. Central de Patologia Vegetal.
- Smith, D. R. 1969a. Symphyta of the West Indies, including those collected during the Bredin-Archbold-Smithsonian Biological survey of Dominica (Symphyta). *Proc. Entomol. Soc. Wash.* 71: 540-543.
- Smith, D. R. 1969b. Key to genera of nearctic Argidae (Hymenoptera) with revisions of the genera *Atomacera* Say and *Sterictiphora* Billberg. *Trans. Amer. Entomol. Soc.* 95: 439-457.
- Smith, D. R. 1970. Nearctic species of the genus *Ptenus* Kirby (Hymenoptera: Argidae). *Trans. Amer. Entomol. Soc.* 96: 70-101.
- Smith, D. R. 1971a. The neotropical sawflies described by Norton and Cresson, with lectotype designations (Hymenoptera: Symphyta). *Trans. Am. Entomol. Soc.* 97: 521-535.
- Smith, D. R. 1971b. Nearctic sawflies of the genera *Neoptilia* Ashmead, *Schizocerella* Forsius, *Aprosthem* Konow, and *Sphacophilus* Provancher (Hymenoptera: Argidae). *Trans. Amer. Entomol. Soc.* 97: 537-594.
- Smith, D. R. 1972. North American sawfly larvae of the family Argidae (Hymenoptera). *Trans. Amer. Entomol. Soc.* 98: 163-184.
- Smith, D. R. 1973. North American sawflies described by Klug and Konow (Hymenoptera: Symphyta). *Proc. Entomol. Soc. Wash.* 75: 28-32.
- Smith, D. R. 1975. New sawflies of the genera *Dielocerus* Curtis and *Themos* Norton from South America (Hymenoptera: Argidae). *Proc. Entomol. Soc. Wash.* 77: 369-375.
- Smith, D. R. 1979. Symphyta, pp. 3-137. In Krombein, K. V. et al., eds., *Catalog of Hymenoptera in America North of Mexico*. Vol. 1, pp. 1-1198. Smithsonian Institution Press, Washington, D.C.
- Smith, D. R. 1980. Notes on sawflies (Hymenoptera: Symphyta) with two new species and a key to North American *Loderus*. *Proc. Entomol. Soc. Wash.* 82: 482-487.
- Smith, D. R. 1981. Symphyta (Hymenoptera: Pergidae, Argidae, Tenthredinidae) collected at the Reserva Ecologica do IBGE, Brasilia, DF. *Revta Bras. Entomol.* 25(4): 275-288.
- Smith, D. R. 1983. The Rohwer sawfly types (Hymenoptera: Symphyta) in the University of Nebraska State Museum. *Proc. Entomol. Soc. Wash.* 85: 366-373.
- Smith, D. R. 1987. The sawfly work of H. G. Dyar (Hymenoptera: Symphyta). *Trans. Amer. Entomol. Soc.* 112: 369-396.
- Smith, D. R. 1988. A synopsis of the sawflies (Hymenoptera: Symphyta) of America south of the United States: Introduction, Xyelidae, Pamphiliidae, Cimbicidae, Diprionidae, Xiphydriidae, Siricidae, Orussidae, Cephidae. *Syst. Entomol.* 13: 205-261.
- Smith, D. R. 1989. The sawfly genus *Arge* (Hymenoptera: Argidae) in the Western Hemisphere. *Trans. Amer. Ent. Soc.* 115: 83-205.
- Smith, D. R. 1990. A synopsis of the sawflies (Hymenoptera: Symphyta) of America south of the United States: Pergidae. *Rev. Bras. Entomol.* 34: 7-200.
- Smith, D. R. and J. Adis. 1984. Notes on the systematics and natural history of *Dielocerus fasciatus* (Enderlein) and key to species of the genus (Hymenoptera: Argidae). *Proc. Entomol. Soc. Wash.* 86: 720-721.
- Smith, E. L. 1970. Biosystematics and morphology of Symphyta. II. Biology of gall-making Nematine sawflies in the California region. *Ann. Ent. Soc. Amer.* 63: 36-51.
- Smith, F. 1866. Notes on some Hymenopterous insects collected by Mr. Peckolt at Catagallo, South Brazil. *Trans. Entomol. Soc. London* 5: 323-327.
- Smith, R. C. 1943. Descriptions of Kansas insects, pp. 117-414. In Smith, R. C. et al. *Common Insects of Kansas*. Rep. Kansas St. Bd. Agric., 440 pp.
- Spinola, M. 1840. Hyménoptères recueillis a Cayenne en 1839 par M. Leprieur, pharmacien de la marine royale. *Ann. Soc. Entomol. Fr.* 9: 129-204.
- Spinola, M. 1851. *Compte Rendu des Hymenopteres inedits provenant du voyage entomologique du M. Ghiliani dans le Para* in 1846. *Extrait des Mem. Acad. Sci. Turin* (2) 13: 3-78. [1853, same article, *Mem. della Reale Accad. dell Sci. Torino* (2) 13: 19-94].
- Taylor, R. L. 1931. On "Dyar's Rule" and its application to sawfly larvae. *Ann. Entomol. Soc. Amer.* 24: 451-466.
- Webb, D. W. 1980. Primary insect types in the Illinois Natural History Survey Collection, exclusive of the Collembola and Thysanoptera. III. *Nat. Hist. Surv. Bull.* 32: 55-191.
- Webster, F. M. 1900. Sudden disappearance of the purslane sawfly, *Schizocerus zabriskei*. *Can. Entomol.* 32: 318-319.
- Webster, F. M. and C. W. Mally. 1900. The purslane sawfly - *Schizocerus zabriskei* Ashm. *Can. Entomol.* 32: 51-54.
- Weldon, G. P. 1907. Tenthredinidae of Colorado. *Can. Entomol.* 34: 295-304.
- Westwood, J. O. 1842. *Arcana entomologica; or illustrations of new, rare, and interesting insects*. Vol. 1. London.

- Wolcott, G.N. 1948. The insects of Puerto Rico. Hymenoptera. Puerto Rico Univ. Jour. Agric. 32: 749-975.
- van Zwaluwenberg, R.H. 1918. Report of the Entomologist. Rpt. Puerto Rico Agric. Expt. Sta., 1916, p. 28.
- Yuasa, H. 1923. A classification of the larvae of the Tenthredinoidea. Ill. Biol. Monogr. 7: 1-172.

INDEX

Valid names are in roman and synonyms are in italic.

- Acanthoptenos* Ashmead / 34
- acella Smith, Acrogymnia / 86
- Acrogymnia Malaise / 85
- Acrogymnidea Malaise / 90
- Adiernia* Enderlein / 78
- Adua* Malaise / 57
- Adurgoa* Malaise / 92
- adusta* Konow, Labidarge / 26
- affinis (Forsius), Manaos / 126
- albicerata (Konow), Hemidianeura / 116
- albicollis (Klug), Sericoceros / 61
- albipes (Konow), Didymia / 102
- albitarsus Smith, Neurogymnia / 54
- albitibialis* Cameron, Hylotoma / 26
- albocoxa* Rohwer, Hemidianeura / 53
- albuquerquei (Malaise), Subsymmia / 68
- alternus (Konow), Tanymeles / 168
- alternator (Norton), Sericoceros / 61
- amabilis Malaise, Eriglenum / 51
- amazonica* Malaise, Sericocerina / 63
- amictorianus (Konow), Tanymeles / 168
- analis Cameron, Trailia / 173
- analis* Malaise, Tanymeles / 20
- angusticeps Smith, Scobina / 20
- annulipes* Cameron, Hylotoma / 25
- annulipes (Schrottky), Subsymmia / 68
- apicalis* Enderlein, Hemidianeura / 120
- apicalis* Forsius, Sericoceros / 128
- apicalis Mocsáry, Hemidianeura / 118
- apicalis (Spinola), Tanymeles / 168
- apicofuscus Smith, Zynzus / 183
- apiculus Smith, Sphacophilus / 153
- Aprosthemma Konow / 95
- apulatus (Greenbaum), Zynzus / 183
- Ardua* Malaise / 57
- Arge Schrank / 34
- Argenia* Malaise / 111
- Argina* Forsius / 39
- Arginae / 10
- Arginella* Forsius / 39
- Argini / 10
- argutus Smith, Sphacophilus / 153
- arida Smith, Arge / 37
- Asymmia* Malaise / 67
- Athermantinae / 10
- Athermantini / 10
- Atomacera Say / 39
- Atomacerinae / 39
- Atomacerini / 39
- Atomaceros* Konow / 39
- atriceps (Kirby), Durgoa / 111
- atripes (Holmgren), Hemidianeura / 118
- audouinii Westwood, Pachylota / 77
- axillaris* Forsius, Schizocerella / 143
- axillaris Spinola, Schyzocera / 190
- barius Smith, Sphacophilus / 153
- basalis (Klug), Scobina / 20
- basimacula (Cameron), Arge / 37
- basipunctata* Kirby, Ptilia / 139
- basivitrata Malaise, Scobina / 21
- Bathylepta* Konow / 34
- bella Malaise, Didymia / 102
- bequaerti Smith, Tanymeles / 168
- bicolor* Jörgensen, Stelidarge / 31
- bicolor (Kirby), Didymia / 102
- bicolor* Kirby, Scobina / 119
- bicolor (Smith), Zynzus / 185
- bicoloripes* Enderlein, Stelidarge / 25
- bigrammatus (Konow), Manaos / 126
- bilineatus* Rohwer, Schizoceros / 143
- bimaculata (Mocsáry), Scobina / 21
- bipartita (Cameron), Scobina / 21
- biramosa (Klug), Neoptilia / 130
- bivittata* Cameron, Hylotoma / 26
- blandus (Konow), Sphacophilus / 53
- bolivari (Konow), Scobina / 21
- boliviensis Smith, Themis / 79
- bonariensis* Holmgren, Hylotoma / 93
- bonplandi (Jörgensen), Scobina / 21
- Brachyphatnus Konow / 96
- brasiliensis (Klug), Serococeros / 61
- brasiliensis Lepeletier, Ptilia / 137

- braunsi (Konow), Scobina / 21
Braunsiola Konow / 39
 breva Smith, Didymia / 102
 brunniventre (Cresson), Aprosthema / 95
 brusa Smith, Scobina / 22
 caerulea (Cameron), Atomacera / 43
 calanticatus Konow, Sericoceros / 63
Caloptilia Ashmead / 10
cameroni Kirby, Hemidianeura / 28
cameronii Dalla Torre, Hylotoma / 26
 carbonaria (Cameron), Didymia / 104
 carbonaria (Klug), Scobina / 22
 carinata (Cameron), Didymia / 104
catinifera Konow, Tanyphatna / 106
 centrus Smith, Sphacophilus / 153
Ceocolus Smith / 144
 ceraus Smith, Sphacophilus / 153
 coeliaca Konow, Hemidianeura / 118
 coerulescens Malaise, Atomacera / 43
 collaris (Klug), Scobina / 22
collaris Rohwer, Schizocerus / 143
columbiana Malaise, Sericocerina / 63
 comana Smith, Atomacera / 43
compressicornis Cameron, Trailia / 65
compressicornis (Klug), Tanymeles / 168
concinna Klug, Hylotoma / 137
 concinnus Mocsáry, Themos / 79
 connarusae Smith, Didymia / 104
 consobrina (Norton), Scobina / 22
consors Kirby, Ptenus / 75
Corynia Imhoff and Labram / 34
 coxalis (Konow), Acrogymnia / 89
 crassicornis (Cameron), Didymia / 104
 crassitarsis (Cameron), Atomacera / 43
 crassulus (Cameron), Zynzus / 185
 crawii Provancher, Sphacophilus / 155
 crenus Smith, Sphacophilus / 155
 critus Smith, Tanymeles / 169
 crudum Konow, Eriglenum / 51
Cryptus Jurine / 34
 cultricornis (Konow), Sphacophilus / 155
curtisi Cameron, Dielocera / 72
 darus Smith, Sphacophilus / 155
 dasua Smith, Hemidianeura / 118
 debilicornis Konow, Brachyphatnus / 97
 declivus (Konow), Manaos / 126
 defius Smith, Sphacophilus / 157
 delta Malaise, Hemidianeura / 118
 diagonica Smith, Scobina / 23
 diamantinensis Malaise, Acrogymnia / 89
 diasi Smith, Atomacera / 45
 diasi Smith, Dielocerus / 70
 dibapha (Konow), Scobina / 23
Didocha Konow / 34
 Didymia Lepeletier and Serville / 99
Dielocera Cameron / 69
 Dielocerinae / 68
 Dielocerini / 68
Dieloceros Konow / 69
 Dielocerus Curtis / 69
 Digelasinus Kirby / 73
 dimidiatus Konow, Sericoceros / 63
diptycha Konow, Stelidarge / 28
discophora Konow, Tanyphatna / 106
 dissensus Smith, Sphacophilus / 157
 diversipes (Kirby), Digelasinus / 75
 dominicaensis Smith, Hemidianeura / 118
 dorsalis (Klug), Scobina / 23
dryope Kirby, Hylotoma / 28
 Duckeana Malaise / 108
duckei Konow, Braunsiola / 48
duckei Konow, Stelidarge / 31
duckei Konow, Trochophora / 180
 Durgoa Malaise / 109
 dusurus Smith, Zynzus / 185
 ebena Smith, Atomacera / 45
 ecuadoriensis (Enderlein), Sericoceros / 63
 edus Smith, Sphacophilus / 157
 edwardsii (Cresson), Sericoceros / 63
 elegans (Klug), Didymia / 106
ellisii Curtis, Dielocerus / 72
 emora Smith, Scobina / 23
 ehippiata (Klug), Hemidianeura / 119
 Erigleninae / 50
 Eriglenum Konow / 50
 evansi Smith, Hemidianeura / 119
 evansi Smith, Sphacophilus / 157
 exilipalpis (Konow), Durgoa / 111
 eximia (Kirby), Scobina / 24
 fascialis (Norton), Scobina / 24
fasciata Enderlein, Scobina / 30
fasciata Forsius, Stelidarge / 33
fasciatipennis Cameron, Hylotoma / 22
 fasciatus (Enderlein), Dielocerus / 70
 fasciatus Smith, Tanymeles / 169
 filicornis (Klug), Manaos / 126
 filiformis (Norton), Hemidianeura / 120
 flava Smith, Atomacera / 45
 flavicornis Benson, Hemidianeura / 120
 flavoalaris Smith, Arge / 37
 forficulata (Konow), Scobina / 24
 formosus (Klug), Dielocerus / 72
 fucata Konow, Hemidianeura / 120
fucosa Konow, Labidarge / 26

- fulcrata* (Klug), Scobina / 24
fulvus Mocsáry, Sericocerus / 63
fumipennis Dyar, Schizocera / 96
fumipennis Forsius, Stelidarge / 29
fumipennis Malaise, Didymia / 106
fusca (Klug), Neurogymnia / 54
fuscipennis Mocsáry, Hemidianeura / 120
galumnata Konow, Labidarge / 29
galumnatus (Konow), Tanymeles / 169
gaullei Konow, Ptenus / 61
geniculata (Klug), Scobina / 24
gibbus (Klug), Sericoceros / 63
ginga Smith, Atomacera / 45
gonagra (Klug), Adurgoa / 93
guaca Smith, Scobina / 25
guatemalensis (Dalla Torre), Scobina / 25
Gymnia Brullé / 99
Gymnia Spinola / 165
Gymniopterus Ashmead / 190
hallex (Konow), Atomacera / 46
hamus Smith, Sphacophilus / 158
heda Smith, Atomacera / 46
helvola (Klug), Scobina / 25
Hemidianeura Kirby / 111
Hemidianeurina Forsius / 99
Hemigymnia Malaise / 85
hilarulus Konow, Tanymeles / 169
himus Smith, Zynzus / 185
hirticornis (Klug), Neurogymnia / 56
hoffmanni Malaise, Neurogymnia / 56
holmus Smith, Sphacophilus / 158
humeralis Malaise, Atomacera / 46
humeratum Konow, Eriglenum / 53
humeratus (Konow), Triptenus / 178
hyalinata Mocsáry, Hemidianeura / 122
hyaline Norton, Themis / 79
hyaloptera (Perty), Dielocerus / 72
Hylotoma Latreille / 34
hypoleucus (Klug), Tanymeles / 170
illisa Konow, Hemidianeura / 122
illuminata Smith, Arge / 37
imbogea Smith, Acrogymnia / 89
imitatrix (Cameron), Neoptilia / 130
immunda Konow, Labidarge / 26
imus (Smith), Zynzus / 187
inconspicuus (Kirby), Tanymeles / 170
inculta (Konow), Scobina / 26
infuscata (Klug), Scobina / 26
intermedia Cameron, Hylotoma / 30
invitus (Cresson), Sphacophilus / 158
iotus Smith, Sphacophilus / 159
janzeni Smith, Sphacophilus / 159
jenseni (Konow), Schizocerella / 141
jocus (Smith), Zynzus / 187
johnsoni MacGillivray, Schizocerus / 143
josephi Konow, Hylotoma / 190
jucunus Smith, Sphacophilus / 159
kierychi Smith, Schizocerella / 141
kimseyae Smith, Manaos / 126
krugii (Cresson), Sericoceros / 64
kuscheli Malaise, Hemidianeura / 120
Labidarge Konow / 10
laeta Cameron, Sericocera / 120
laqueatus (Enderlein), Themis / 79
lateralis Konow, Schizoceros / 143
latus Smith, Sphacophilus / 160
lauta Konow, Ptilia / 138
lautiformis Rohwer, Ptilia / 138
lepida (Klug), Scobina / 26
lepidula (Konow), Atomacera / 46
Leston Ross / 140
leucocephala (Klug), Topotritia / 83
leucopoda (Cameron), Hemidianeura / 120
leucosoma Cameron, Rusobria / 138
leucotarsis (Cameron), Sphacophilus / 160
lineatus Rohwer, Schizocerus / 143
Litocolus Smith / 144
liturata (Konow), Neoptilia / 130
lobata (Erichson), Trochophora / 180
lobula Smith, Atomacera / 46
longiserra Smith, Neurogymnia / 56
longiserrula Smith, Arge / 37
lopesi Malaise, Acrogymnia / 89
lopesi Malaise, Atomacera / 46
lugubris (Klug), Didymia / 106
lurida (Klug), Scobina / 27
luteiventris (Cameron), Zynzus / 187
Lyrola Ross / 95
machaerii Malaise, Subsymmia / 68
maculipennis (Forsius), Manaos / 126
maculipes (Klug), Scobina / 27
madunus Smith, Sphacophilus / 160
magnidens Smith, Arge / 37
magnus (Smith), Zynzus / 187
malaisei Smith, Themis / 81
malleri Malaise, Atomacera / 46
malleri Malaise, Topotritia / 84
Mallerina Malaise / 75
malvacearum (Cockerell), Neoptilia / 130
mamillata (Konow), Adurgoa / 93
mammeatus (Konow), Manaos / 128
Manaos Rohwer / 124
marginipennis Malaise, Ardua / 64
martini (Lepeletier), Didymia / 106

- masoni* Smith, *Sphacophilus* / 161
mattogrossensis Malaise, *Durgoa* / 111
medeus Smith, *Tanymeles* / 171
megaloptera Schulz, *Ptilia* / 137
megaptera (Cameron), *Ptilia* / 137
melanaria (Klug), *Scobina* / 27
melanictera (Klug), *Ptilia* / 137
melanocephala (Lepeletier), *Scobina* / 27
melanopyga (Klug), *Scobina* / 28
melanura Lepeletier and Serville, *Ptilia* / 106
melini Malaise, *Atomacera* / 47
memmonius Smith, *Sphacophilus* / 161
menkei Smith, *Hemidianeura* / 120
menkei Smith, *Zynzus* / 187
mesomelus (Klug), *Tanymeles* / 171
mexicana Ashmead, *Neoptilia* / 130
mexicana Ashmead, *Pseudocyphona* / 135
mexicana (Cresson), *Hemidianeura* / 121
mexicana Pasteels, *Arge* / 37
mexicanus (Kirby), *Sericoceros* / 64
Micrange Ashmead / 39
midea Smith, *Hemidianeura* / 121
mina Smith, *Atomacera* / 47
miniatiithorax Enderlein, *Labidarge* / 31
Miocephala Konow / 34
missionum Schrottky, *Caloptilia* / 21
mitellata Konow, *Nematoneura* / 104
modestius Smith, *Ptenus* / 185
moniliatus (Konow), *Sphacophilus* / 161
mulsus (Konow), *Manaos* / 128
nama Smith, *Atomacera* / 47
nantina Smith, *Hemidianeura* / 121
nasicornis Curtis, *Hylotoma* / 190
nasuta (Cameron), *Didymia* / 106
natna Smith, *Hemidianeura* / 121
Neardua Malaise / 57
Nematoneura André / 190
Neoptilia Ashmead / 129
Neurogymnia Malaise / 53
niger Norton, *Ptenos* / 123
nigerrima Cameron, *Ptilia* / 185
nigra Smith, *Durgoa* / 111
nigriceps Cameron, *Hylotoma* / 26
nigricollis (Konow), *Scobina* / 28
nigricornis Kirby, *Hemidianeura* / 122
nigricosta Smith, *Neurogymnia* / 56
nigrinotatus Rohwer, *Manaos* / 128
nigripalpis (Malaise), *Sericoceros* / 65
nigripennis (Enderlein), *Scobina* / 29
nigripes (Konow), *Scobina* / 29
nigritus (Klug), *Tanymeles* / 171
nigrolineata Cameron, *Trilia* / 61
nigronotum Malaise, *Themos* / 81
nigropectus (Norton), *Zynzus* / 189
nigrorubra (Malaise), *Sericoceros* / 65
nigrostoma Rohwer, *Caloptilia* / 29
nimbata Konow, *Labidarge* / 25
nobilis Forsius, *Hemidianeura* / 107
notata (Klug), *Scobina* / 29
notaticollis (Konow), *Scobina* / 29
nubeculosa Konow, *Labidarge* / 28
nubilipennis Forsius, *Argina* / 48
nugana Smith, *Arge* / 37
nuntius Smith, *Sphacophilus* / 161
nyvsa Smith, *Neoptilia* / 132
oblatus Smith, *Sphacophilus* / 162
obscurus (Brullé), *Sericoceros* / 65
ochreus Smith, *Themos* / 81
ochrostigma Curtis, *Hylotoma* / 191
ocreatus Smith, *Dielocerus* / 72
odontus Smith, *Sphacophilus* / 162
Oigodianeura Malaise / 111
olfersii (Klug), *Themos* / 82
opla Smith, *Trochophora* / 180
opulesa Smith, *Neoptilia* / 132
orthius Smith, *Sphacophilus* / 162
orus Smith, *Sphacophilus* / 162
ovalis (Klug), *Adurgoa* / 93
ovata (Jörgensen), *Atomacera* / 47
Pachylota Westwood / 76
Pachylotinae / 68
pagana (Panzer), *Arge* / 39
palama Smith, *Acrogymnia* / 89
palla Smith, *Neoptilia* / 132
palliditarsis (Malaise), *Sericoceros* / 65
panitus Smith, *Sphacophilus* / 162
paradorsalis Smith, *Scobina* / 29
parca Konow, *Labidarge* / 26
partitus Smith, *Sphacophilus* / 163
parvus (Smith), *Zynzus* / 189
patulus (Smith), *Zynzus* / 189
pauxilla (Konow), *Acrogymnia* / 90
peletieri (Gray), *Ptilia* / 137
pellos (Konow), *Didymia* / 106
peratus (Konow), *Sphacophilus* / 163
petroa Smith, *Atomacera* / 47
piceiventris (Klug), *Sphacophilus* / 163
piceoterga Rohwer, *Caloptilia* / 30
pictipes Konow, *Labidarge* / 25
pilicornis (Holmgren), *Schizocerella* / 141
plana Smith, *Hemidianeura* / 122
plaumanni Malaise, *Atomacera* / 47
plaumanni (Malaise), *Hemidianeura* / 122
plumicornis (Klug), *Hemidianeura* / 122

- plumicornis* Norton, Sericocera / 61
poecila (Klug), Scobina / 30
poecilioides (Ashmead), Scobina / 30
praecox (Klug), Tanymeles / 171
procera (Klug), Arge / 37
procus Konow, Sericoceros / 119
prodiga (Konow), Duckeana / 108
pronotatus (Malaise), Sericoceros / 65
propleuralis (Malaise), Hemidianeura / 122
Pseudocyphona Ashmead / 129
Ptenellus Malaise / 111
Ptenos Norton / 111
Ptenus Kirby / 111
Ptilia Lepeletier / 135
Ptiliini / 84
pubicornis (Fabricius), Atomacera / 47
pullipennis Konow, Labidarge / 30
pumila Malaise, Atomacera / 48
pumilio (Kirby), Didymia / 106
pusilla (Malaise), Acrogymnia / 90
pusillus Forsius, Sericoceros / 126
quercus Cameron, Sericocera / 61
quidra Smith, Hemidianeura / 122
quixus Smith, Sphacophilus / 163
rallus Smith, Sphacophilus / 163
rasitus Smith, Tanymeles / 172
raza Smith, Atomacera / 48
recta (Enderlein), Atomacera / 48
resa Smith, Didymia / 106
retus Smith, Zynzus / 189
Rhagonyx Konow / 129
Rhopalospiria Enderlein / 34
ricatus (Konow), Manaos / 128
rioensis Malaise, Acrogymnidea / 91
romani (Forsius), Manaos / 128
romani (Forsius), Triptenus / 178
romani Malaise, Atomacera / 48
rosarioensis Malaise, Brachyphatnus / 97
rosenbergi Rohwer, Caloptilia / 28
rossi Smith, Tanymeles / 172
rubricollis (Klug), Scobina / 31
rufina Malaise, Acrogymnia / 90
rufiventris (Cameron), Atomacera / 48
rufomacula Smith, Arge / 37
rufoniger (Malaise), Sericoceros / 65
ruminata (Konow), Hemidianeura / 123
Rusobria Cameron / 99
scapularis Forsius, Schizocerella / 143
scapularis Kirby, Hemidianeura / 120
Schizocerella Forsius / 140
Schizocerina Smith / 57
schrottkyi Konow, Labidarge / 33
scitula (Konow), Scobina / 31
Scobina Lepeletier and Serville / 10
Scobinini / 10
scutimacula Malaise, Acrogymnia / 90
scutinus Smith, Sphacophilus / 163
segrex (Konow), Tanymeles / 172
semiadusta (Enderlein), Themos / 82
semifuscus Norton, Hylotoma / 25
sericeiformis Rohwer, Schizocerus / 143
Sericocera Brullé / 57
Sericocerina Malaise / 57
Sericocerini / 50, 84
Sericoceros Konow / 57
Sericocerus Mocsáry / 57
serrata Smith, Atomacera / 48
serratus Kirby, Ptenus / 72
silana Smith, Trailia / 176
similis Mocsáry, Themos / 82
singularis Ashmead, Gymniopterus / 191
Sjoestedtini / 10
socius (Konow), Tanymeles / 172
Sofus Malaise / 140
soror (Kirby), Didymia / 107
Spegazziniella Jörgensen / 39
Sphacophilus Provancher / 144
spiculata (MacGillivray), Arge / 37
spinolae Brullé, Sericocera / 63
stata Smith, Neoptilia / 134
Stelidarge Konow / 10
Sterictiphorinae / 50, 84
Sterictiphorini / 84
stigmaticollis (Klug), Scobina / 31
strophosa (Konow), Scobina / 31
styx Malaise, Scobina / 32
Subsymmia Malaise / 67
suda (Konow), Scobina / 32
sulcicornis (Cameron), Pachylota / 77
surinamensis (Klug), Themos / 82
surinamensis Smith, Acrogymnidea / 91
suritus Smith, Tanymeles / 173
sutus Smith, Sericoceros / 65
tannuus Smith, Sericoceros / 66
Tanymeles Konow / 165
Tanyphatna Konow / 99
Tanyphatnideini / 10
tegularis (Konow), Brachyphatnus / 97
tegularis Konow, Labidarge / 28
tenebrica Konow, Hemidianeura / 119
tenuous Smith, Sphacophilus / 164
terminalis Klug, Hylotoma / 27
testacea (Klug), Scobina / 32
testacea Cameron, Hylotoma / 26

- teusa Smith, *Didymia* / 107
 texana (Norton), *Hemidianeura* / 123
Theminae / 68
 Themos Norton / 78
Themus Schultz / 78
 thoracica (Jørgensen), *Scobina* / 32
 thoracica Ashmead, *Hemidianeura* / 123
 thoracica Schrottky, *Caloptilia* / 32
 tibialis Spinola, *Gymnia* / 191
 tina Smith, *Scobina* / 32
 Topotritia Kirby / 83
Topotritini / 68
 tora Smith, *Neoptilia* / 135
 torquata (Konow), *Scobina* / 33
 torridus Smith, *Ptenus* / 187
 tosus Smith, *Tanymeles* / 173
 toulia Smith, *Manaos* / 128
 townesi Smith, *Ptilia* / 139
 townsei Smith, *Zynzus* / 189
 townsendi Ashmead, *Caloptilia* / 30
 Trailia Cameron / 174
 transtillata (Konow), *Acrogymnia* / 90
 treza Smith, *Schizocerella* / 143
 tria Smith, *Atomacera* / 49
 tria Smith, *Neurogymnia* / 56
 triangularis Smith, *Sphacophilus* / 164
 triangulata Malaise, *Atomacera* / 49
Triarge Forsius / 34
Trichorhachinae / 84
Trichorhachini / 84
 tricolor Malaise, *Mallerina* / 75
 trigemina (Klug), *Didymia* / 107
 Triptenus Malaise / 176
 tristis Cresson, *Schizocera* / 95
 tristum Smith, *Eriglenum* / 53
 Trochophora Konow / 178
 truculenta (Konow), *Atomacera* / 49
 truncatus (Cameron), *Sphacophilus* / 164
 uberaba (Brèthes), *Didymia* / 108
 udata Smith, *Acrogymnidea* / 91
 una Smith, *Ptilia* / 139
 unifasciata Smith, *Didymia* / 108
 urcacensis (Cameron), *Tanymeles* / 173
 usinus Smith, *Sphacophilus* / 164
 usirus Smith, *Zynzus* / 190
 valga Konow, *Labidarge* / 27
 vana (Smith), *Hemidianeura* / 123
 vargus (Smith), *Zynzus* / 190
 varicolor Norton, *Pachylota* / 130
 ventralis Klug, *Hylotoma* / 33
 ventris Smith, *Scobina* / 33
 versicolor (Klug), *Ptilia* / 139
 verticalis Spinola, *Didymia* / 107
 vescus Smith, *Brachyphatnus* / 97
 vigilax (Malaise), *Themos* / 82
 villosa Norton, *Sericocera* / 63
 violaceipennis André, *Nematoneura* / 191
 violaceus (Kirby), *Digelasinus* / 75
 viridana (Malaise), *Hemidianeura* / 123
 vitreata Konow, *Labidarge* / 28
 vittata (Mocsáry), *Scobina* / 33
 vittata (Kirby), *Arge* / 39
 vumirus Smith, *Sericoceros* / 66
 weyrauchi Malaise, *Topotritia* / 84
Weyrauchia Malaise / 57
 willinki Smith, *Adurgoa* / 95
 wizunus Smith, *Tanymeles* / 173
 wygodzinskyi Malaise, *Manaos* / 128
xanthoptera Perty, *Schizocera* / 137
 xanthospila (Klug), *Scobina* / 33
 xicana Smith, *Neoptilia* / 135
Xylosericocera Wolcott / 57
 zabriskei Webster and Malley, *Schizocerus* / 143
 zaddachi Dewitz, *Schizoceras* / 64
 zantara Smith, *Scobina* / 34
Zenarge / 9
Zenarginae / 9
 zonia Smith, *Atomacera* / 49
 zonorus Smith, *Sericoceros* / 67
 Zynzus Smith / 180